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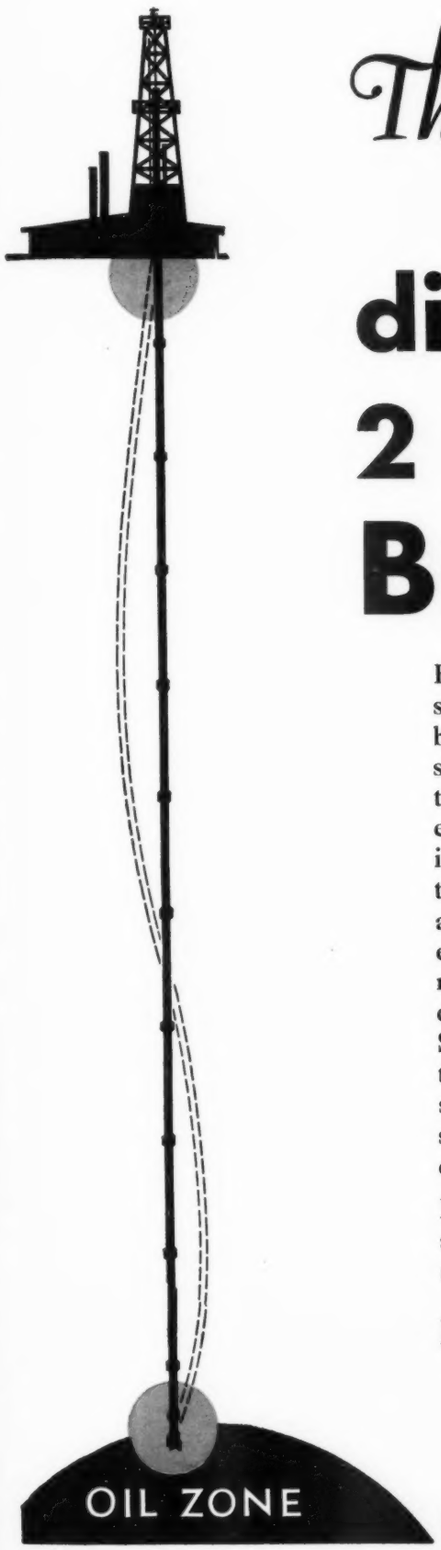

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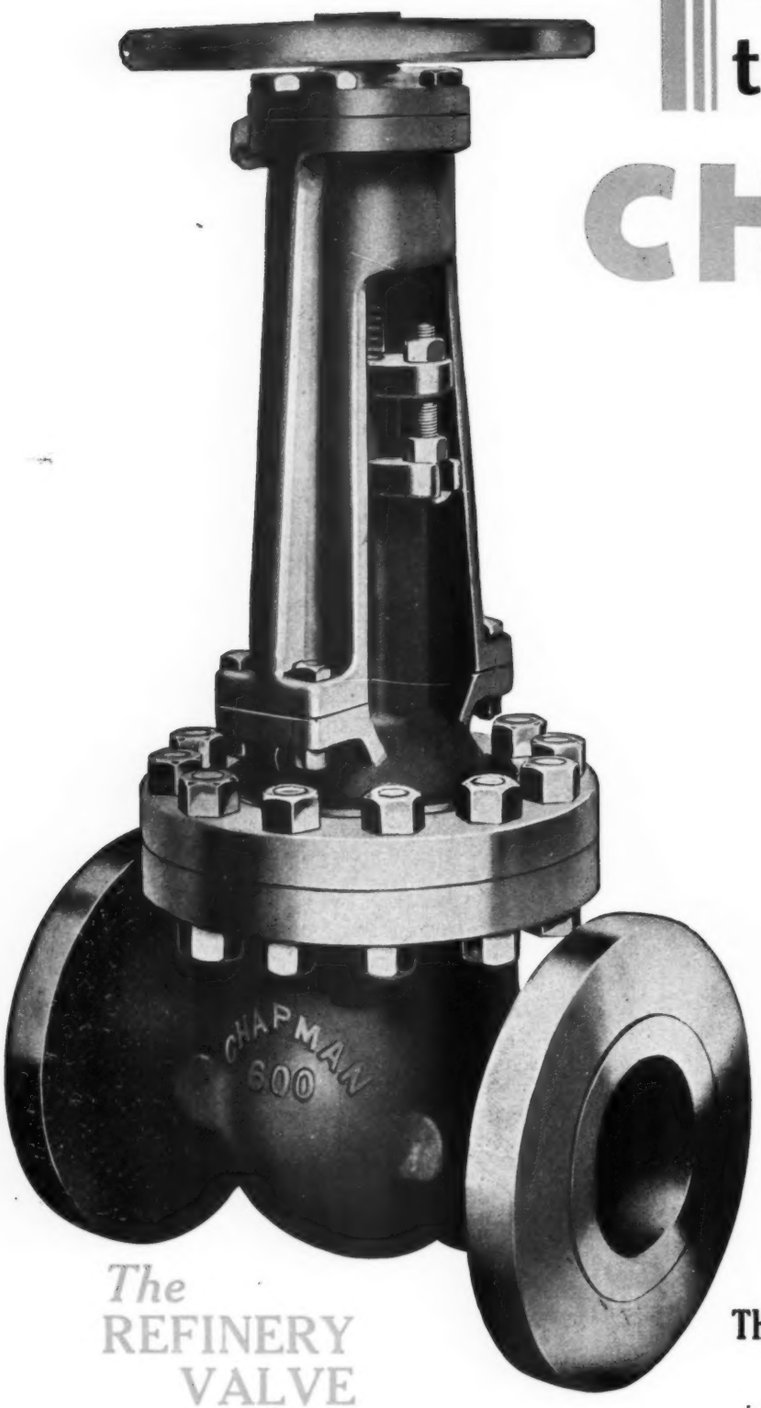

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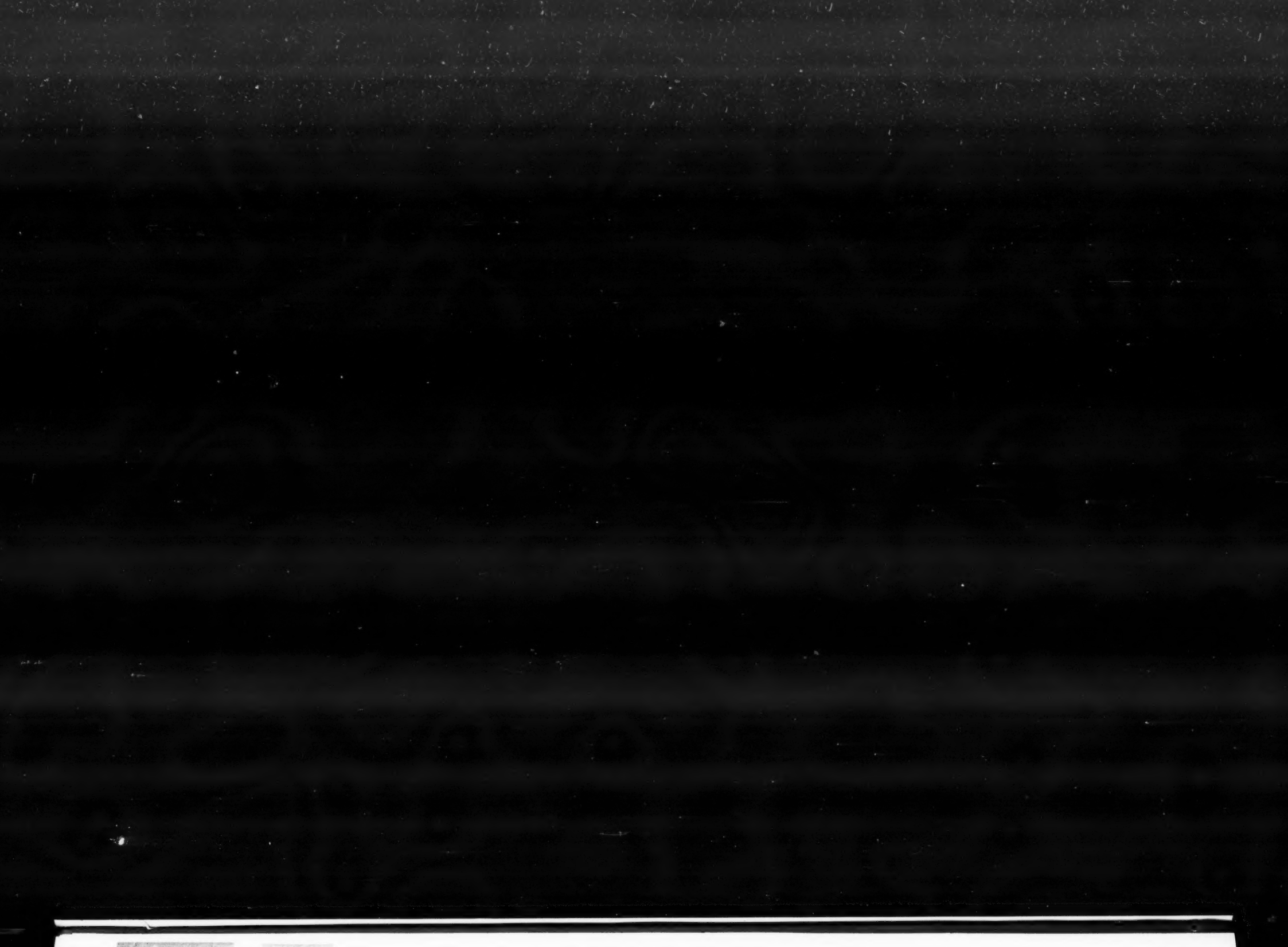

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A. E. Mockler, Rooms 1919-21, No. 154 Nassau Street, New York, N. Y.
B. D. Stevenson, 1504 Milam Building, San Antonio, Texas.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
John B. Waldo, Room 1416, No. 6 North Michigan Blvd., Chicago, Ill.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Postoffice, Toledo, Ohio.
Neil Williams, 1316 Second National Bank Building, Houston, Texas.

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Slogan Now Is "Sit Tight in the Boat"

Highest production in 1930, week ending Feb. 22, average daily output 2,699,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

With Season of Greater Consumption at Hand, Improvement Is Expected With Continuance of Present Policy

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

If the petroleum industry can ride through present efforts to break down proration and overcome such movements intended to further handicap it in its efforts to stabilize conditions, an improved situation will be experienced by all branches of the business within the next six weeks or two months. In other words, the slogan of those who believe future prosperity depends on the ability of the industry to hold down crude oil production and the manufacture of gasoline now, is "Sit tight in the boat". The course of the boat to this improved position is beset by high waves of agitation against curtailment of crude oil production and rocks of other interested movements.

Improved demand for gasoline is felt usually around the first of March with an increase of larger proportions beginning about May 1. This, naturally, will be reflected in greater crude oil requirements. It is to this period of the year the industry should look now and plan its operations accordingly. By far the large bulk of the industry favors proration of crude oil production and the holding of gasoline stocks down to a conservative level. Political appeals to those ignorant of the oil business should not be permitted to swerve the industry from the course it has set out to follow. The reason for such agitation is clearly apparent to those in close touch with conditions in the oil business at this time.

The industry will enjoy a greater demand for its raw material and refined products within a very short time. Strict adherence to the policy of holding supply to requirements will permit each branch of the business to enjoy better business. Any deviation from this policy will serve only to further muddle the situation.

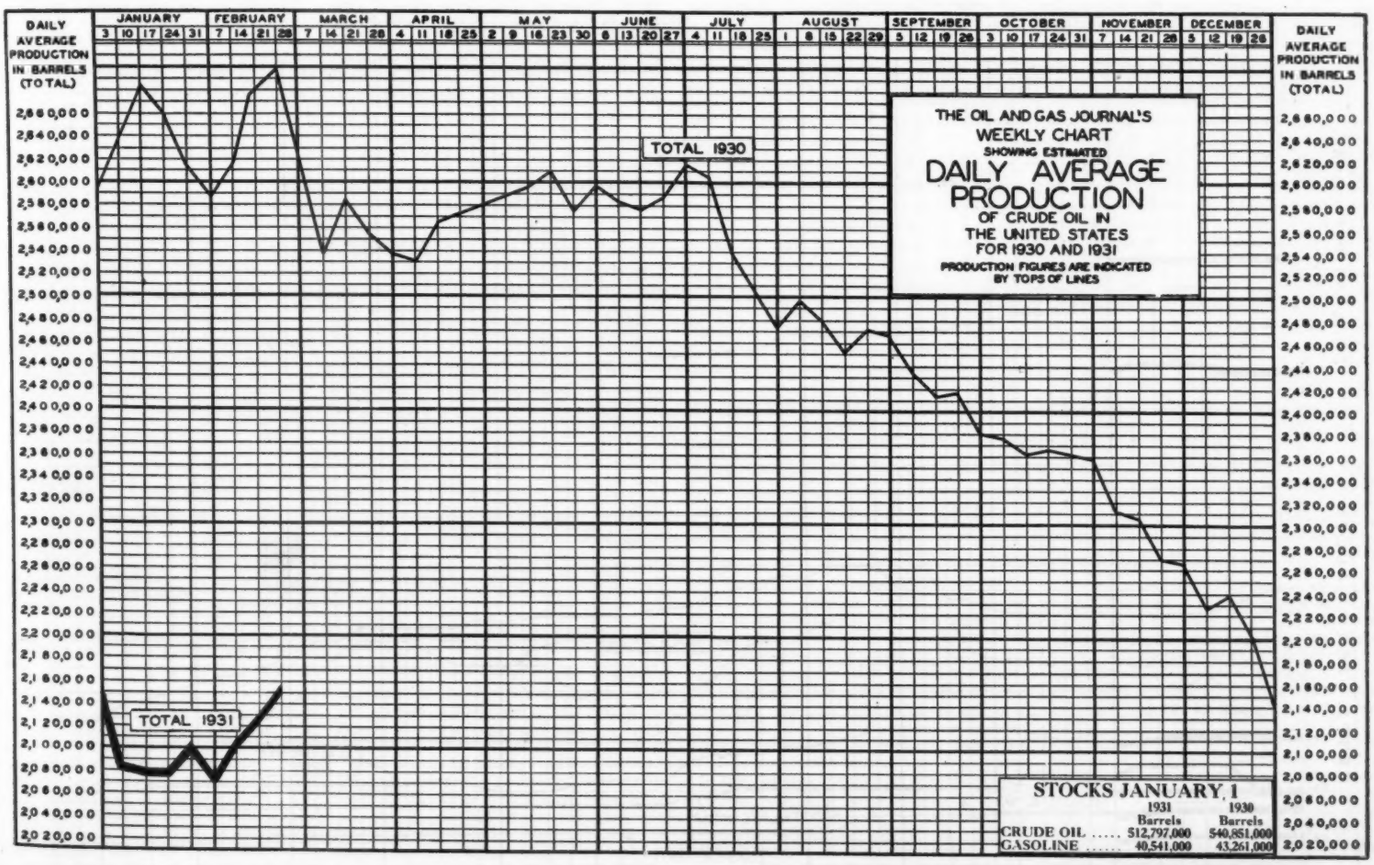
Oil men should realize by this time, after numerable experiences, they cannot expect relief from political sources. Consequently, they should decide now once and for all to run their own business as it should be conducted under existing conditions, looking only to stabilization of the price structures on a basis which will permit a profit on operations.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended February 21 and a comparison with the previous week follows:

	Feb. 21	Feb. 14
Oklahoma—		
Oklahoma City	106,115	88,810
Seminole-St. Louis	164,340	156,045
Remainder of State	231,580	228,985
Total Oklahoma	502,035	473,840
West Texas—		
Hendricks	51,740	50,806
Yates	92,283	94,486
Remainder	101,797	100,499
Total West Texas	245,820	245,791
North Louisiana	44,880	44,545
Arkansas	49,840	49,870
North Central Texas	82,698	84,164
Texas Panhandle	50,010	54,045
East Central Texas	67,988	57,763
Kansas	115,870	119,145
Total Mid-Continent area	1,159,141	1,129,163
Gulf Coast	177,448	177,468
Southwest Texas	85,547	89,379
Eastern	108,000	108,000
Rocky Mountain area	100,148	97,998
California—		
Santa Fe Springs	71,000	70,500
Long Beach	93,750	93,000
Playa Del Rey	32,500	33,500
Elwood	31,000	31,500
Ventura Avenue	45,000	45,000
Kettleman Hills	26,000	26,750
Remainder of State	229,250	228,000
Total California	528,500	528,250
Total United States	2,158,784	2,130,258

→ Increase 28,526 Bbls. Daily ←



Trading Slow in Oklahoma Market

Prices on Several Products Sag as Spot Market Continues Inactive. Expect Gasoline Demand to Improve in March

By C. O. Willson

The price changes of the past week in the Oklahoma (Group 3) market included a reduction of 1 cent a gallon in all grades of bright stocks, a one-fourth cut in natural gasolines and additional reductions in several grades of fuel oil, gas oil and furnace oil distillates. A few refiners have also reduced their prices on their steam refined cylinder stocks.

Among the remaining products, price changes, when any were made, were generally downward, with more sales at the low of the market price spreads. The situation in all products is a reflection of a continuance of a dull spot market. Veteran market observers, including both buyers and sellers, are authority for the statement that spot trading in Oklahoma and the Mid-Continent generally "never was slower." At the same time some of the larger refiners in the State report a "fair" to "good" movement of material on contracts and to their own station outlets.

There were no new developments in the crude oil situation explained in these columns last week which at that time was responsible for the weakness in several refined products. A major refining organization which was seeking up to 50,000 bbls. of crude oil daily from the Oklahoma City Field has not been able to purchase at the 67-cent per barrel offer. The developments at Oklahoma City in this connection point to a continuance of proration under state supervision with no substantial change in posted prices, and to that extent at least the bearish predictions heard last week in regard to future prices of gasoline and other refined products do not appear as near fulfillment as they did at that time. However, there are some buyers who appear to be operating on the assumption that there will be additional reductions in both crude oil and refinery quotations, and for that reason they are staying out of the refinery market as much as possible.

Although the uncertainty regarding the crude oil situation is a controlling factor in the weakness of the refinery market, market observers also point to the situation in regard to actual consumption of some refinery products as disappointing.

The demand for all grades of fuels has been particularly slow. As is generally known, the demand for furnace oils due to mild weather, has not come up to expectation. Several refiners had stored the better grades during the summer and fall months in expectation of a heavy demand in January and February, a usual development of past years. They have found, however, that their current output has taken care of customers and they have been faced with the problem of liquidating their storage. This phase of the situation accounts for the price reductions which have been made the past two weeks by several refiners in which it has been possible to buy straw color furnace oil of low cold test and flash with gravities from 36 to 40 as low as 2½ cents per gallon.

At the same time a zero grade of gas oil with a flash under 190 of good odor has been fairly scarce at prices from one-eighth to one-fourth cent under the higher gravity distillates. The explanation for this is found in both the supply and demand. In general, refiners produce more of the regular high gravity distillates than they do the low cold test, and low flash gas oils. The fact that the demand for kerosene has been slow for several months has tended to increase the supply of high gravity distillates many of which are prime white in color. On the demand side there is a trend toward the lower gravity furnace oils with their higher B.t.u. content providing the cold test and flash are satisfactory.

Fuel Oil Demand

In addition to the dull demand for the various grades of furnace oil, the consumption of the heavier fuels has been slow. In January, there was an improvement in the industrial demand in several areas and it was hoped that buying would continue to improve with the resumption of industrial activity. This improvement, however, failed to continue in February and during the past week there was very little spot trading in any grade.

Some of the railroads in the Southwest have reduced their contract takings and this has been reflected in the quantity available on the spot market for delivery

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REFINED MARKET BAROMETER

Although there were exceptions to the rule both as to products and refining areas the past week in refined markets was more favorable from the standpoint of buyers than sellers. The demand for several products has been slow and several refiners have reduced prices at scattered points. With gasoline demand at the low point of the year and supplies adequate the tendency was to shade prices in several refining areas, the important exception being the East Coast where prices are steady. Kerosene continues generally dull. Weakness in all grades of fuel oils appeared to center at interior points, the Coastal prices being firm. No definite trends in lubricants was apparent, advances in one area being offset by declines in another. Natural gasolines were weak both in California and Mid-Continent. Some improvement in demand for wax.

East Coast—Price range on domestic grades of gasoline narrowed when lowest priced sellers advanced quotations. Kerosene quiet. More inquiries for bunker oil. Some grades of steam refined stocks and bright stocks advanced. Fair demand for furnace oils. Better domestic demand for wax. Export prices well maintained.

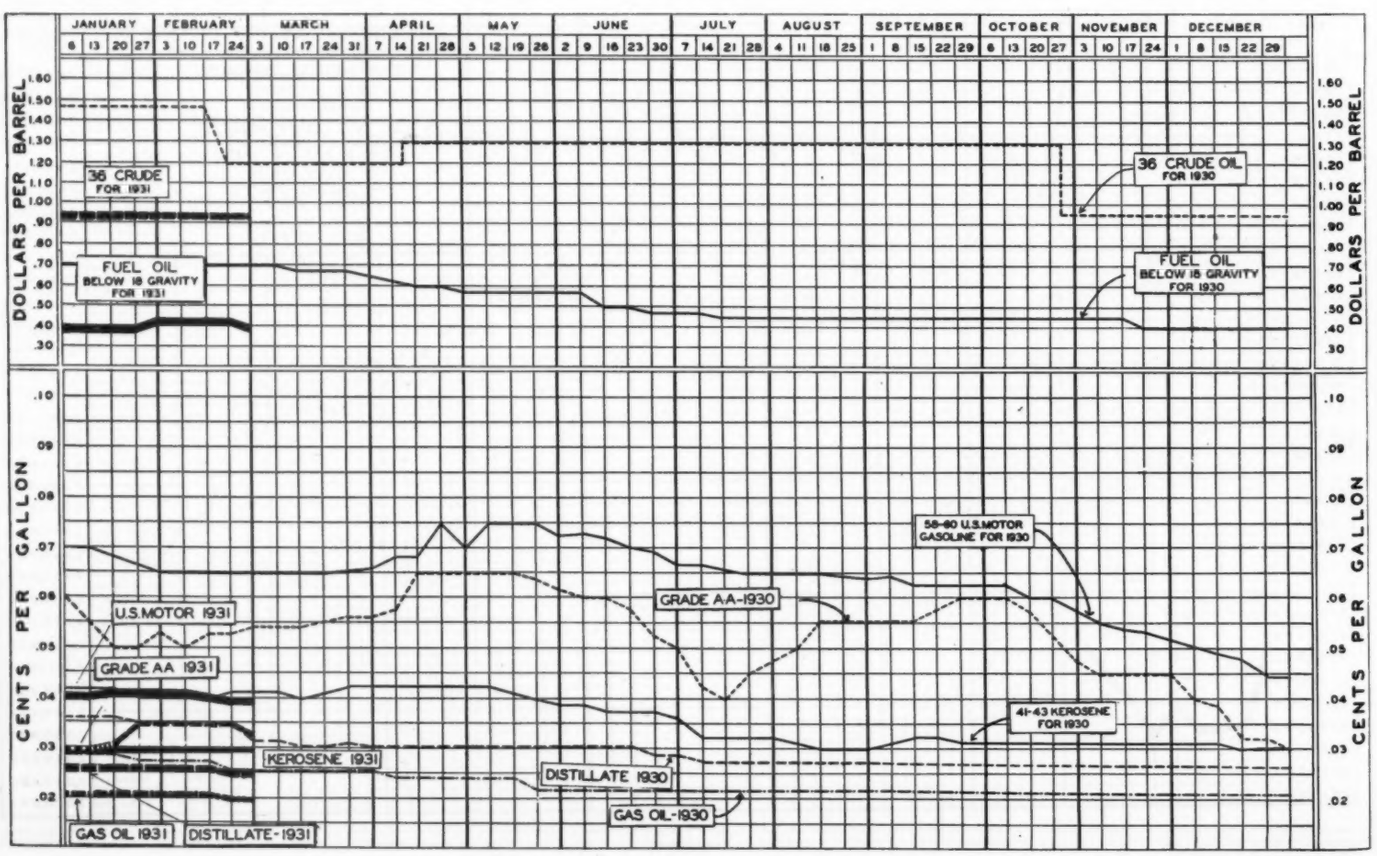
Mid-Continent—Market generally slow with greatest price weakness in Oklahoma, Kansas and North Texas. Refinery gasolines and natural gasolines lower in price. Fuels weak. Scattered reductions in bright stock and steam refined stock prices. Kerosene prices unchanged. Wax steady.

Pennsylvania—Gasolines and kerosene steady. Price adjustments in some grades of neutral oils. Wax unchanged. Better demand for bright stock and steam refined stock.

California—Natural gasolines weak. Refinery gasolines unsettled. Fuel oil quoted over wide price ranges.

Gulf Coast—Routine buying in all products. Prices unchanged.

Chicago—Trading dull in practically all products. Buyers able to purchase gasoline at December levels. Slow demand for heavy fuel oils, and furnace oils with prices lower.



East Texas "Boom" Beats Them All

Rain Adds to the Difficulties of Travel and Operations in New Districts. Graphic Picture of Conditions

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

TYLER, Tex., Feb. 23.—Seminole had its bog-holes, West Texas had its sandstorms, Smackover and Spindletop its mosquitos and Oklahoma City its mail-promoters, but Joiner, Kilgore and Farrell-Lathrop have all of these, with an extra supply of tribulations to bring plenty of wonderment and worry to the operators. Many will tell you that this new "boom" beats anything they have seen, and that the only ones who will come out ahead will be the landowner and the lease traders who saw an opportunity in this new sector and took advantage of it. The crude purchaser—the one after cheap oil—will also gain plenty if he has his own line and a steady demand, but some of the smaller skimming plants have a chance to lose if they rush in as rumors first stated they were planning to do. Second thought has no doubt intercepted their first plans, for as yet there are only four plants being constructed in the three separate areas, and these plants have already found substantial markets for their processed crude.

If any one doubts the hugeness of this latest boom and the extent of the activities, let him make a trip to this new sector along the following trail which is being covered daily by hundreds of automobiles: From the west, Fort Worth and Dallas, drive to Tyler, the county seat of Smith County, where many of the major and smaller companies, lease brokers and others have their headquarters; thence east to the little town of Arp, on the Missouri Pacific Railroad, where many supplies and vast quantities of material are being unloaded from flat cars for the Joiner Field. Traveling on east about 10 miles, the western extension of the Joiner Field looms up, at the present time showing over 30 derricks standing. Next, the town of Joinerville attracts the traveler as the proverbial "boom town," with its many beaver-board and pine-board shacks housing the many and sundry institutions which go to make up such a village; with its hundreds of transients who are perhaps looking for work, or only looking for the softest berth they can find, living from hand to mouth, or perhaps only existing.

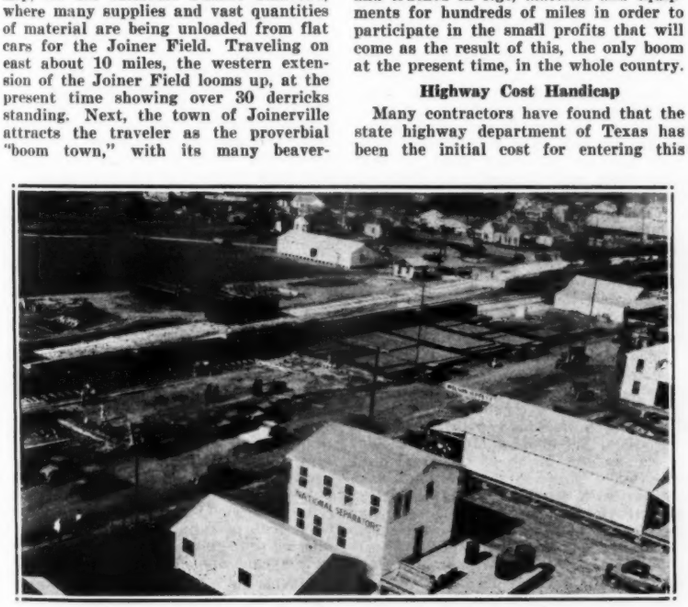
Conditions in Joiner Field

Two miles northwest of this newly born stopover is the Joiner Field, which was discovered by C. M. (Dad) Joiner on the Mrs. Daisy Bradford farm in the Juan Ximines Survey in October, 1930. Since that discovery, five dry holes have been drilled around the field, limiting it to the north, northeast, east and southeast, and approximately 25 producers have been completed, extending the pool to the west, southwest and northeast, the pool now humming with around 90 rotary rigs going full tilt to reach the Woodbine to see what it is going to pay off on the numerous leases, the majority of which are exceptionally small, but are characteristic of the field. Many of these leases are being drilled by contractors on a partnership basis, taking an interest in the lease for a well, or taking a small interest and part of the cost of the well in cash, while other contractors are sinking "turnkey" jobs for the companies or holders of the leases. Many trades of all nature are made on the leases in order to get a well drilled, for some of the leaseholders had barely enough cash or credit to obtain the leases, and now that they have them on their hands and have to have them drilled as offset tests, they are prone to do considerable scheming to get a test drilled as cheaply as possible, or without the layout of any cash at all.

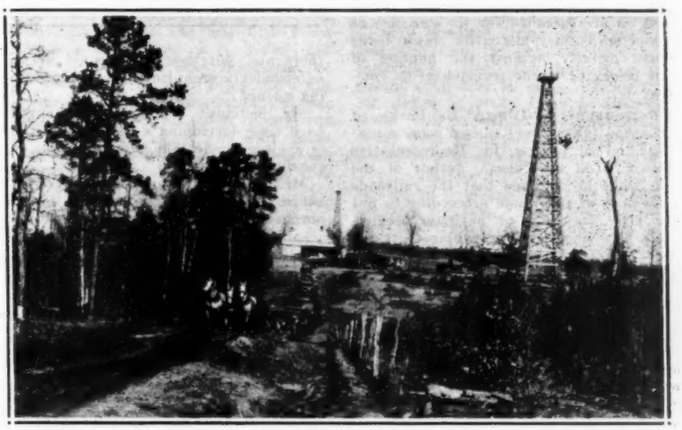
Contractors will tell you that it is going to be a difficult proposition to make any money with their rigs and equipment, and if they can only pay off their crews and keep them running, make the interest on the investment tied up in their equipment and a little over for themselves they feel they will be lucky. But they figure this will be far better than to have their tools stacked for many months to come, as many have been stacked for several months in the past, and consequently contractors have shipped and trucked in rigs, material and equipments for hundreds of miles in order to participate in the small profits that will come as the result of this, the only boom at the present time, in the whole country.

Highway Cost Handicap

Many contractors have found that the state highway department of Texas has been the initial cost for entering this field, for daily their trucks are being stopped on the state highways by state motorcycle patrolmen who weigh the loads, and in many cases assess a heavy fine, or tie the trucks up in the various towns along the way until the owner can purchase the necessary permits, or pay off the fines which have been levied on the overloaded trucks. Ignorance of the highway laws of the State is no excuse, but it would seem no more than fair for someone to inform these owners of these highway obligations so that they could prepare their trucks with the necessary permits and licenses before they were taken into custody and tied up for many days, or perhaps weeks, until restitution can be made to satisfy the seemingly insatiable demands of the patrolmen, many of whom have the wrong conception of their duties. They could in the majority of cases perform a great benefit to the State and the oil industry, with a few words of admonition and advice, but in many cases they seem to be taking the wrong attitude, and are costing the companies and operators and contractors hundreds of dollars each day by delaying shipments by trucks.



View of Kilgore showing supply houses, new supply houses being built on the railroad right of way, pipe stacked along railroad, and pipe in cars waiting to be unloaded.



Typical scene in the Joiner Field showing one of the bog-holes which hold up cars, trucks and teams. Horses and mules are the main source of power for hauling equipment into this field where many corduroy roads are being built out of the pine and oak trees which are in great abundance in this district.

A clipping from an Abilene, Tex., paper stated that as high as $700 in one day had been assessed as fines on trucks loaded with equipment being hauled from the Hobbs, N. Mex., and West Texas fields to the new fields in East Central Texas, and one operator in the new area said he believed over $1,000 per day was being collected in fines from truck owners in many of the towns in East Central Texas. The oil industry has perhaps done more to build up the State of Texas in the past 10 years than any two or three other industries, bringing in billions of dollars to the State, and it seems absolutely unappreciative to have the builders of the industry harassed in the busiest of times, because they are unfamiliar with the laws or not forewarned. Those who have been operating in the State for the past few years have no excuse, but many of the operators and contractors in the new fields are men from other states, and the burden of the troubles is falling upon their shoulders.

Roads Impassable

When one leaves the highway at Joinerville to drive through the Joiner Field he does not get very far in his car—he has to resort to his own two legs or a horse in order to get around in the field for the roads are impassable. Rains and small streams keep the ground saturated and spongy, and mule teams and tractors are the only source of power that can overcome the bog-holes, and often tractors give up the struggle and sink far below their caterpillars. One good feature of this country is the abundance of oak and pine trees which are being felled at a rapid rate to give way to derricks, and for the making of corduroy roads for the fields, and without this road building equipment (the areas are practically void of all rocks and gravel) hauling in drilling equipment would be an almost insurmountable task. And the roads in the field will become worse instead of better as more wells are drilled, more equipment is hauled in, and especially this spring when there is more rain. The winter season has been more than good to the operators this year so far as there has been a small amount of rainfall.

Six short pipe lines have been completed from the Joiner Field to loading racks at Friars Switch on the I.&G.N. Railroad north of the pool, and three of these lines have been loading out oil for the past several weeks. The six lines are owned by the following companies:

The Sinclair-Texas Pipe Line Co., 6-inch; Petroleum Marketing Corp. (subsidiary of Warner-Quinlan, Inc.), 6-inch; Rusk County Pipe Line Co., two 4-inch lines (one is already completed and another will be constructed parallel to the first one); Panola Pipe Line Co., 4-inch; Inland Waterways Pipe Line Co., 4-inch; Beacon Oil & Refining Co., 4-inch to its 2,500-bbl. skimming plant which it is now erecting 2 miles northwest of Henderson on the railroad. The East Texas Refining Co., formed by F. W. Burford of the Burford Oil & Refining Co. which owns and operates a refinery at Pecos City, is also constructing a 6,000-bbl. plant at Friars Switch north of the field, and will operate on Joiner crude supplied it by the Rusk County Pipe Line Co.'s lines.

Field Outlets

The six lines now entering the field have an approximate daily capacity of around 100,000 bbls. a day, and the field is producing an average of about 30,000 bbls. per day, but is increasing in production each week as new wells are completed and connected.

Two purchasing companies in the Joiner Field have already posted 40 cents as the price of crude from this field, but it is generally understood several contracts have been made for crude at 5 and 7½ cents lower than this price. Many are of the opinion purchasers can readily be made for crude from this field, but at the present time this is not the case, and many buyers have been unable to obtain contracts at the present posted prices. This status will change, however, when many more wells are brought in and the present purchasers, at least some of them, cut their purchases to a smaller amount due perhaps to a lack of con-

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Committee Hearing on Pipe Line Bill

Interstate Commerce Commission Refuses to Approve or Disapprove Measure. Sharp Exchange of Opinions

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 23.—Republicans and Democrats asked searching questions when the Hoch bill (H.R. 16,695) was before the house committee on interstate and foreign commerce. This is the bill that provides that no pipe line may lawfully transport a product owned by itself just as the commodities clause of the interstate commerce law provides that it shall be unlawful for any railroad to haul its own products except such as are intended for its own use as a common carrier, the latter clause being aimed directly against the hauling of coal belonging to the transportation company.

Representative Tilman B. Parks of Arkansas (Democrat) caused some sensation and a protest by Representative Homer Hoch of Kansas, author of the bill, when he declared that the railroads were back of the whole proceeding to put the pipe lines out of business because these pipe lines were preparing to transport gasoline at competitive rates the railroads themselves could not offer.

A. S. Ritchie on Stand

A. S. Ritchie of the Derby Oil Co., Wichita, Kans., proceeded on the theory that community of interest between the pipe lines and large refining companies resulted in a depression of prices that purchasing companies forced upon the oil producers.

After a few questions Representative Parks declared that it was easy to see what the contention over the pipe lines was about.

"I think this bill is bringing the independent oil operators here to kill the pipe lines," said Mr. Parks.

Mr. Hoch, challenging this statement, declared that no railroad had anything to do with it, that it was not to kill pipe lines but it was to make them available to everybody.

Mr. Parks read extracts from a newspaper editorial which pointed to the railroads as the instigators of the pipe line bill and said the railroads would not willingly surrender their gasoline transportation to pipe lines.

Mr. Hoch: "There is not a line in this bill about taking anything away from pipe lines."

Mr. Parks: "The railroads are authorized to transport freight and passengers. If you can tell me what benefit taking the pipe lines away from the people who produce oil will be to the small producer, I would like to hear this witness explain how that operates. The pipe lines were organized for the service they are rendering."

"The significant fact is that most of the crude purchasing companies are associated with the pipe lines," said Mr. Ritchie. "It is hard for a small producer to provide storage or to keep out of the market."

The witness said that from his refinery the gathering charge was 20 cents a barrel and the freight to Bayonne, N. J., was 76 cents, making a total charge of 96 cents a barrel, the average price of crude in Kansas, 42° gravity, being $1.07.

Representative Milton C. Garber of Oklahoma (Republican): "You do not mean to say that that is a competitive price?"

Mr. Ritchie: "That is the posted price given by the Prairie Oil & Gas Co."

Representative Carl E. Mapes of Michigan (Republican): "Is there anything to prevent the independents from coming in and purchasing this oil? Could not the Standard of Indiana or New York go in there and purchase it or could not the independents organize their own purchasing agency?"

Mr. Ritchie: "They might have a hard time developing a market and there is a close connection between these purchasing companies."

Mr. Mapes: "Why could you not organize co-operative associations for the purchasing of oil just as farmers have organized marketing associations for their farm products? I cannot see how the passage of this law will affect the situation anyway."

Mr. Ritchie: "I think personally there is a close connection between the purchasing companies and the transporting companies so that it is possible for them to assume control over the price of crude oil. If that is the case, it might not make much difference what the producing industry did."

Mr. Mapes remarked that pipe line rates were subject to approval of the Interstate Commerce Commission just as are railroad rates.

Representative John E. Nelson of Maine (Republican) wanted to know how the Hoch bill will help the oil producers whether the pipe lines were owned by one interest or another.

Mr. Ritchie said that if the pipe lines were separate companies and not interlocking they could be controlled.

Mr. Nelson: "It is up to the Interstate Commerce Commission to regulate their rates and control conditions whoever owns them. You have a legal remedy now if you are not obtaining proper service from these common carrier pipe lines that are under the supervision of the Interstate Commerce Commission."

Mr. Ritchie: "I am not sure how far the Interstate Commerce Commission has control."

Representative Adam M. Wyant of Pennsylvania (Republican): "Do you mean to say that prices of oil are arbitrarily fixed or are they fixed by the laws of supply and demand?"

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OIL AND GAS JOURNAL PIPE LINE MAP SURPASSES GOVERNMENT'S EFFORTS

WASHINGTON, D. C., Feb. 23.—During his testimony before the House Committee on Interstate Commerce, Charles E. Bowles, statistician for the Independent Petroleum Association of America, illustrated his remarks from the pipe line map prepared by and published in The Oil and Gas Journal. He said he used that map because it was accepted by the oil industry as accurate and up-to-date, being superior in those respects to any like publication of the Government.

New California Curtailment Program

Detailed Report of Statewide Committee Recommending Governing Principles to Be Followed Under New Policy

By L. P. Stockman

HOLLYWOOD, Calif., Feb. 21.—A special committee consisting of J. A. Brown, W. C. McDuffie, Ralph Lloyd, William Reinhardt and Paul N. Boggs appointed by the California statewide committee on curtailment to make a study of curtailment methods adopted in the past and to recommend governing principles for a permanent future program has just completed a detailed report which will be submitted to the general committee for consideration soon. This survey fixes the potential daily production of the State at 1,100,000 bbls. and indicated excessive stocks aboveground of gasoline, fuel oil and refining crude. It also notes that important fields have been held back in development and that the producing capacity of the State could be increased another 500,000 bbls. per day without difficulty by additional drilling. The committee recommends that it would be to the best interests of all California producers to limit production in California for the current year to 500,000 bbls. daily subject to any revision either upward or downward made necessary or advisable by conditions during the year. Principles recommended for future use are intended to "prevent loss of remaining reserves of fully drilled fields, permit orderly development of partially developed fields to the best economic advantage, to discourage unnecessarily rapid and wasteful drilling and operation of new areas."

Governing Principles

In order to accomplish this it is recommended that future curtailment be based on the following principles:

"Fundamentally, each field should, in the interest of owners and the State, be operated so as to produce its maximum ultimate recoverable oil and gas content. The reserves of all fields should be calculated with revisions at suitable intervals to meet changing conditions. The division of total allowable production among the several fields should be fundamentally based on each field's prorata of the State's known oil reserves but this basic principle must submit to modification in the following particulars:

"The state of development of fields must be considered so that this position is approached gradually for newer fields. The character of the crude must be considered in relation to the character of market demand. Newer fields must keep their allowed production down so that curtailment will not result in loss of these crude reserves of the State. Where ownership is such that a voluntary curtailment to a greater extent than the average is satisfactory to the owners it should continue as in the past but without prejudice to their equitable rights.

"The state curtailment committee as now arranged should set each month or twice each month, with the assistance of engineering advice, the potential production of each field and well. The true measure of potential of all wells should be the amount of crude they can produce under customary conditions and methods with the entire field in which they are located on full production in the same manner and at the same time. Potentials should be continually modified in accordance with approved engineering practice."

The committee after alloting the total production among the various fields in a manner to deal fairly with all fields in accordance with the general principles, will apply curtailment in each field according to the following suggestions:

"Future new separate zones of production in a field already developed in other zones should be treated as entirely new fields. In fully developed fields with holdings in very small tracts wells of less than 30 bbls. per day potential should not be curtailed except where such wells occur on leases with other wells so that it would be feasible for the lease to take its full percentage curtailment. Other wells in such fields should be curtailed an equal percentage of potential except that new wells in such fields should not be produced at over 200 bbls. daily unless and until such rate results in their being operated at the same percentage curtailment as other wells of over 30 bbls. potential. Present examples referred to in this paragraph are Long Beach, Huntington Beach, Santa Fe Springs and Playa Del Rey.

"In fields whose ownership is divided into larger areas and where development has been sufficient to make the engineering calculations of proven acreage and reserves reasonably reliable the present reserves of each property should be established with revisions at suitable intervals. The production allowed the field should be allocated among the properties 50 per cent of the field allowable on the basis of reserves and 50 per cent of the field allowable on the basis of potential. The potential is defined for the field as the sum of the potential per well on such property multiplied by the number of proven acres in the property. The percentage that each property's potential is of the field total potential is the percentage it would take of the field outlet allotted to potential. Examples of fields referred to in this paragraph include Ventura Avenue and Elwood.

"Fields in which development is just starting or which may be found in the future should be organized into unit plans and the allowed production divided among owners in accordance with the unit plan agreement. Where it is impossible to arrange unit plans the allowed production should be shared in co-operative agreements on the basis of 50 per cent of the allowable to the proven acreage and 50 per cent of the allowable to potentials. In order that a property may not be unfairly drained by another a drainage sector should be established in each competitive area of the field and in this sector a distribution of allowable pro-

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Natural Gas Leakage From Pipe Lines

Greater Interest Manifest in This Subject as Result of Extensive Expansion of Systems Throughout United States

Specially Contributed

During the past several years, the subject of leakage of natural gas from pipe lines has been studied and applied to company operations with many beneficial results. All operating companies are interested in their loss and unaccounted-for gas, and, especially, the effect of leakage upon this item. Many companies have regular leakage departments and find that they are well worth while.

The Bureau of Mines and the Natural Gas Association co-operating together have made a comprehensive study of the problem, confining the work to high-pressure pipe lines. This work as a basis has helped with later improvements, and even at the present time new things are being learned about the minimizing of gas leakage. Much literature is available on the leakage problem[1], not only for transmission lines but on distribution systems.

The work of the Bureau of Mines and the Natural Gas Association was finished and the results published in a Bureau of Mines bulletin several years ago. The results of the leakage work as summarized in this bureau bulletin were:

1. A satisfactory leakage method has been developed for measuring the rate of leakage from pipe lines.

2. Characteristic curves of leakage against pressure have been established, so that tests at one or two pressures form a basis for a reliable estimate of the leakage at other pressures.

3. A method of expressing leakage losses from pipe lines has been devised, so that the results show actual leakage from the line and the leakage on a comparable basis for comparison with leakage conditions of other lines.

4. The study has shown the actual value of leakage tests on natural gas transmission lines.

5. An increase in the maximum pressure to which a line is subjected increases the rate of leakage at all pressures below that maximum pressure.

6. The operating pressure on a pipe line should be kept as low as is consistent with good service.

7. The condition of earth cover has a physical effect on the leakage rate at distribution and intermediate pressures, but does not affect the leakage rate at high pressures.

8. Leakage tests reveal operating losses in pipe lines that should be eliminated.

9. More precaution should be used in constructing field and branch lines.

10. Methods of locating the reparable leaks have been studied and applied to reduce the leakage rate from the line.

11. The leakage survey has shown the need of a comprehensive method of keeping leakage records.

12. The tests have indicated the leakage to be expected from transmission lines taking into account size, construction and operating conditions.

Recent Developments

At the time that this bulletin was written, operating companies had not been making a detailed study of their leakage problem, and as a result the tests were not conducted on pipe lines that had been built with leakage prevention one of the requisites in the initial construction. Many improvements have been instituted lately. The discussion in this paper will include the progress to date.

Where it is possible in application, the most satisfactory method of testing pipe lines for leakage is by the pressure drop method. In using this method, it is necessary to have the pipe line or section of pipe under test absolutely shut off so that no gas is entering the line and no gas is leaving it except the gas that is lost by leakage. The gas is shut in the line under pressure. This can be done with valves provided that they are tight. However, it is very difficult to obtain valves that remain absolutely leak proof, and for accuracy, it is preferable to shut the gas in the line with blind discs between flanges or by using bull plugs. In the latter case, the section of line has to be isolated from the main line and a filling connection applied. In making the test, all outlet connections should be bull plugged and only those sources of leakage left alone that actually are present during the time that the line is in actual operation.

The rate at which the pressure in the line decreases is a measure at which gas leaks from the line. Therefore, the data that are necessary for a leakage test are the initial and final pressures of a pressure drop, the time that is consumed during the drop, and the volume of the line. The calculation is based upon the principle of Boyle's law, which states that at constant temperature the volume of a gas is inversely proportional to the absolute pressure. The application to a leakage test is illustrated by the following example:

Example Is Cited

Assume the initial pressure of a pressure drop to be 201 pounds per square inch.

Assume the final pressure of this drop to be 199 pounds per square inch.

The time for the pressure to decrease from 201 to 199 pounds per square inch is 100 minutes.

The volume of the pipe is 1,440 cubic feet.

Then the rate of leakage is $\frac{201 - 199}{100} \times \frac{1{,}440}{14.4}$ or 2 cubic feet per minute at an average pressure of 200 pounds per square inch. In this case, the value, 14.4, is the pressure base of measurement.

This method of calculation can be expanded further to permit results in a more convenient form. This is explained later.

The rate of leakage is represented by a small pressure drop. Therefore, it is necessary that the pressure be obtained accurately. For this purpose, a dead weight gauge can be used. This measuring device is made from a deadweight tester and measures the pressures directly with an accuracy of less than 0.1 pounds per square inch.

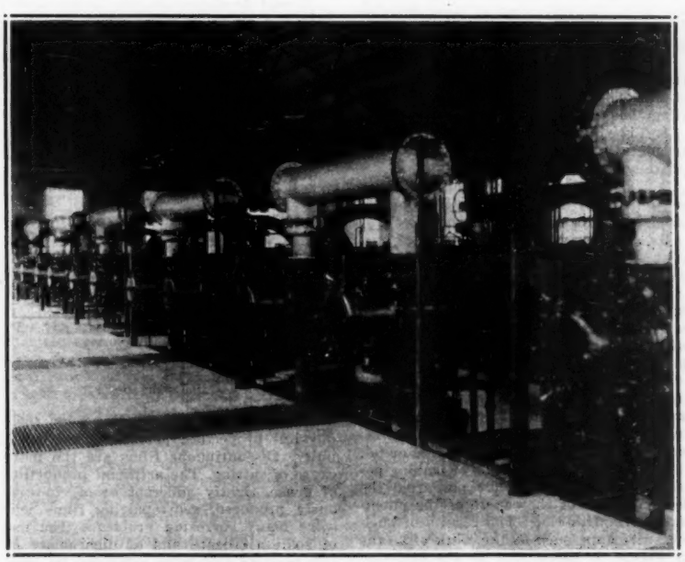
Temperature variation has to be considered in a leakage test. It is best to actually measure these temperatures if possible. Otherwise it is best to make the intervals of such short duration that the effect of any temperature change is negligible. The test interval can be made as short as a readable pressure drop can be obtained, provided that this pressure drop is not obtained too quickly to sacrifice the accuracy of experimental readings. Ordinarily, this test interval does not have to be over two or three hours, and many cases can be made much quicker than this.

Many times it is desired to obtain the leakage from main trunk lines on which the continuity of gas service depends. The conditions of operation in such cases many times is such that it is not possible to take a section of the line out of operation and shut it in for a leakage test. Some other method of measuring this leakage has to be used. A fair approxi-

(Continued on Page 119)

[1]Rawlins, E. L., and Wosk, L. D.; Leakage From Natural Gas Transmission Lines, Bureau of Mines Bulletin 265. Williams, Charles E.; A Study of Leakage Losses From Natural Gas Transmission Lines, Natural Gas, April, 1928. Williams, Charles E.; What Is Allowable Leakage, The Oil and Gas Journal, August 29, 1929. Improvements Are Reducing Transmission Line Leakage, special article, The Oil and Gas Journal, June 16, 1927. Crout, John; Distribution System Leakage, Natural Gas, April, 1927. Hagan, W. G.; Methods for Detection of Gas Leakage, The Oil and Gas Journal, June 16, 1927. Ogilvie, V. A.; Reduction of Gas Losses, Natural Gas, January, 1925. Unaccounted-for Gas, Western Gas, September, 1929.

GOOD PROGRESS BEING MADE IN CARRYING NATURAL GAS TO LARGE CITIES IN EAST



In the readjustment forced upon oil pipe line carriers in the East by the shipping of western, Mid-Continent and imported crudes to eastern refineries by water routes, part of the Southern Pipe Line Co.'s lines east and "State Line Station" were sold to the Manufacturers Light & Heat Co., a subsidiary of the Columbia Gas & Electric Corp., to be used as a natural gas trunk line system east and a booster station. State Line Station formerly housed the usual triple expansion power pumps. The station has been converted and now encloses six 400-horsepower Cooper-Bessemer direct-connected compressors which sends the gas east to York, Pa., and Washington, D. C. This is the first completed link in a large system which will eventually supply the local companies in cities, large and small, with natural gas from West Virginia and Kentucky. Natural gas will be mixed with artificial gas for domestic consumption which may be sold at a rate to compete with the high-priced anthracite coal generally in use.

Progress in Prevention of Corrosion

Study of Metal Surface Films and Potentials. Boiler Embrittlement Subject of Co-operative Investigation

By V. V. Kendall and F. N. Speller*

This is a review of the principal outstanding developments in corrosion work during the past year or two. While progress made in combating this waste of material has been quite considerable, it is well known that much yet remains to be done, so we have stated both the accomplishments and the work that it seems should be undertaken next. This paper is not intended to be complete but covers the more important activities particularly in the oil industry.

As corrosion prevention is an economic problem the solution must be based on the cost of preventive measures compared with the loss directly and indirectly due to deterioration.

This problem is recognized as of primary concern to purchasers of metal construction but well-established manufacturers are also interested and glad to cooperate in working out an economical solution. Some effective co-operative work is being done to this end both here and abroad. In fact this is a world wide problem that apparently can be solved most readily by noncompetitive co-operative research.

Recent work on the fundamental process of corrosion has been done mainly on the study of metal surface films and potentials. Evans has done some interesting

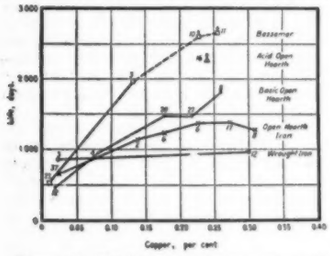


Figure 2—Pittsburgh tests, No. 22 gauge sheets—showing relation of copper to life in days on various types of steel.

work in connecting changes of potential with film formation and has utilized these potential changes in tracing the formation of films. His previous accomplishments in the separation of these invisible films from the surface of metals are well known.

Passivity has been satisfactorily connected with the formation of primary stable oxide films. The presence of these films has been indicated or proven by:

1. The inability of "air-oxidized" iron to plate out copper from a copper sulphate solution.
2. The resistance to corrosion imparted to iron by immersion in solutions of oxidizing salts such as chromates.
3. The resistance to the flow of current through iron, nickel, and cobalt electrodes after anodic oxidation.
4. The inactivity of metals having basic oxides in neutral or alkaline media and their subsequent activity in acids in which the solubilities of the oxides are greater.
5. The actual presence of tough, thin, transparent oxide films on "air-passive" materials as determined by their isolation from carbon and stainless steels by selective dissolution of the underlying metal.

Improvements in methods of making potential measurements have permitted the determination of the course of the potential curve with time. The results of such measurements, such as the work of Evans in Figure 1, correspond to the behavior of the film, a rising potential indicating that weak points are being repaired, and a falling potential that the breakdown is extending. A high final potential indicates immunity from attack, a middle value slight rusting and a low value profuse rusting. Figure 1 has been slightly changed from the original to give the analysis and surface condition of the metals. The metals were either ground coarse or polished by successively finer grades of emery, cleaned with carbon tetrachloride and exposed to air, free of dust and moisture, for one week. This would, of course, result in the formation of a film of some description before the initial measurements were taken. The increased resistance of chromium steels to corrosion in the polished condition is well known and is readily shown in the potential curves. Chromium has the power

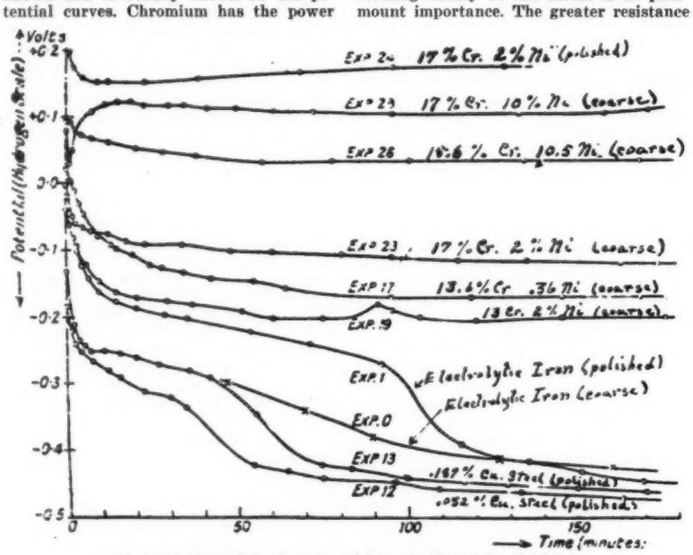


Figure 1—Potentials of commercial steels (Bannister & Evans).

of forming a very resistant (invisible) film in oxidizing media but, in dilute hydrochloric acid, where such films cannot exist, dissolves even more rapidly than pure iron.

Recent developments have demonstrated that the study of films which has been progressing for the last few years is of the utmost practical as well as theoretical importance. Films can either inhibit or

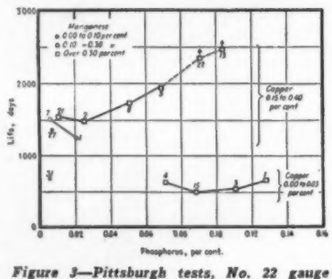

Manganese
a 0.00 to 0.10 per cent
b 0.10 - 0.30 "
c Over 0.30 per cent
Copper 0.15 to 0.40 per cent
Copper 0.02 to 0.03 per cent
Life, days
Phosphorus, per cent.

Figure 3—Pittsburgh tests, No. 22 gauge sheets—showing effect of phosphorus, copper and manganese.

accelerate corrosion depending upon their physical properties, potentials and continuity. Discontinuous films are the main cause of pitting. The artificial production of dense, tightly adherent or of continuously produced, self-repairing films will solve many corrosion problems. The use of sodium silicate and of dichromate in refrigerating and other solutions are well known examples of such applications.

Bengough, Stuart and Lee have developed more refined means of measuring initial rates of corrosion by measuring the oxygen consumed in a closed type apparatus.

The electrolytic theory still explains satisfactorily most of the problems in the corrosion of metals—the outstanding factors being: Potentials induced by variations in concentration of oxygen or contact between dissimilar materials; anodic and cathodic polarization; and the formation or lack of protective films on the surface of the metal. Direct chemical attack occurs at high temperatures and in some other instances such as in the presence of certain sulphur compounds in crude oil products in the absence of water.

Atmospheric Corrosion

Under atmospheric conditions the film-forming ability of the metal is of paramount importance. The greater resistance of copper steel to atmospheric influences is well established. A statistical analysis of the A.S.T.M. tests shows the effect of copper for the various types of commercial steels (Figure 2). Phosphorus when combined with copper has a decidedly beneficial influence (Figure 3). This applies to a copper content of from 0.15 to 0.40 per cent. The most effective phosphorus content for this content of copper is from about 0.08 per cent upwards. Below 0.03 per cent copper, phosphorus seems to have no effect. The increased resistance toward atmospheric corrosion of copper steel seems to be due to

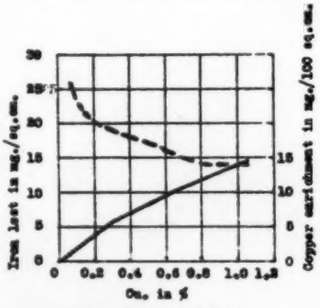


Figure 4—Copper enrichment on the surface of copper steel in relation to the calculated loss of iron after nine months' exposure to the atmosphere.

a reprecipitation of a copper oxide film on the surface of the steel. Carius and Schulz, by analyzing the rust of corroded copper steels, found a definite enrichment of the surface in copper which corresponded with the decrease in the rate of corrosion in the atmosphere. Figure 4 gives their results.

In 1929, the Iron & Steel Institute, England, and the National Federation of Iron & Steel Manufacturers organized a joint committee on corrosion. They have made no reports as yet but are carrying on extensive field tests on the corrosion of copper steels under different atmospheric conditions, rural, marine, urban and industrial.

Basic Materials

The investigation of metallic coatings for protection against the atmosphere has proceeded along with the improvement of the basic materials. The American Electrochemical Society held a symposium at Detroit, September, 1930, on "Prevention of Corrosion of Metals in the Automotive Industry." The papers and discussion naturally dealt for the most part with atmospheric corrosion. The general improvements in chromium plating and the introduction of 18-8 chrome-nickel steel sheets for certain parts were important developments. Zinc, zinc alloys, cadmium and chromium electrodeposited coatings have been quite successful industrially for specific purposes. The use of chromium for plating automobile radiator shells has made the public plating-conscious with

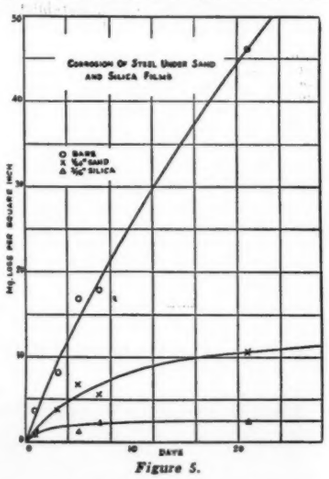


Figure 5.

the result that it has become necessary for the manufacturers and the platers to solve many plating problems. Chromium is too brittle to be applied to anything except a rigid object. Hence sheet steel radiator shells receive a coating of first copper, then nickel and finally a very thin coat of chromium. Heating the chromium deposit for 30 minutes at 450° F. is reported to increase its resistance to corrosion seven-fold. The alloy coatings such as zinc-mercury and zinc-cadmium have shown considerable promise. While cadmium itself is not always satisfactory, the zinc-cadmium alloy is apparently much better than zinc alone.

The spray test and the salt-spray test for coatings are well known. A calcium chloride spray test has been recently developed. Calcium chloride is now commonly used to allay dust on many of the automobile highways. It is more corrosive to plated parts than sodium chloride and will attack chrome-plate more easily than sodium chloride.

Methods of Testing Corrosion

Laboratory testing of corrosion has been considerably improved during late years by the improvement of existing tests and the development of tests corresponding more closely to service conditions. In

(Continued on Page 130)

*Before Western Metal Congress, San Francisco, February 19.

Economics of the Crude Oil Potential

Price of Oil Correlates With Corrected Inventories, Above Ground Storage, Plus Inventory Equivalent of Potential

By Joseph E. Pogue*

It is the purpose of this paper to attempt to establish three theses which may be stated in advance as follows:

(a) The crude oil potential is the accumulation of surplus initial production.

(b) The crude oil potential is a semi-inventory and therefore is a casual factor in the price of crude petroleum.

(c) The price of crude petroleum no longer correlates with aboveground inventories but does correlate with corrected inventories (i.e., aboveground storage plus the inventory equivalent of the crude oil potential).

The factors and principles set forth in this study are thought to yield an approximate answer to a number of questions of active interest in the petroleum industry today, to-wit:

(a) How long would be required to eliminate the potential if all drilling ceased?

(b) What would be the indicated crude oil production of the United States in 1931 if proration were abandoned?

(c) What economic change would be necessary to warrant a higher price for crude oil?

Definitions

For the purposes of this study the following definitions may be stated:

The crude oil potential in the United States is the quantity of oil that all the oil wells would make the first 24 hours if permitted to flow unrestricted. The surplus potential is the above mentioned quantity minus the volume currently produced.

Initial production is the first day's unrestricted flow of an oil well. The aggregate initial production is the sum of the initials of all wells completed during a year. Surplus initial is the initial not needed to bring production into balance with demand.

The annual production equivalent of the crude oil potential is the volume of oil that would be produced in one year if all wells were permitted to flow normally with no new wells completed. The inventory equivalent of the crude oil potential is the volume of aboveground storage that would have the same economic effect as the potential. The surplus initial is equal to the crude oil potential minus the current rate of production.

Relation of Initial to Potential

Table 1 shows the method of determining the factor relating the aggregate initial of wells completed in a year to the annual production of these wells. The period covered is the 12 years, 1916-1927, antedating the general practice of proration. With an annual decline of old production approximating 25 per cent, it is found that the ratio of aggregate initial to its annual production equivalent centers around 52, which is the median of the 12 ratios. Thus if we multiply the aggregate initial for any given year by 52, we obtain the annual production contributed by the initial of all new wells during the year.

Reference to Table 1 reveals that the aggregate initial in 1928, 1929 and 1930 ran substantially higher than in previous years and above the trend for the series. Table 2 shows the portion of the aggregate initial that was not needed to take up the decline of old wells and which was consequently left over as surplus initial. Under proration, this surplus initial was held underground in the form of potential production. Table 2 shows that in the past three years the summation of the surplus initial is approximately 11,100,000 bbls. Theoretically this figure should coincide with the surplus potential; that is, the actual potential minus current production. The actual potential of the country is not precisely known, but the indications are that at the close of 1930 it was running in the neighborhood of 13,500,000 to 14,000,000 bbls. A calculation of the rated potential of the United States as of November 1, 1930, made by the statistical department of a large oil company, places the potential at 13,800,000 bbls. If we subtract from this figure the November daily production of 2,289,000 bbls., the resulting surplus, or shutin, potential becomes 11,500,000 bbls. This figure compares closely with the 11,100,000 bbls. calculated in Table 2 as the surplus initial that has accumulated during the past three years. The close agreement of the two figures, in view of the generalized character of the data, is regarded as establishing the thesis that the shutin potential is the summation of the surplus initial, a conclusion also valid on logical grounds alone. Therefore surplus initial and surplus potential are one and the same thing.

It is apparent that the development of this large shut-in potenital is the result of the policy of curtailment through proration of production as followed by the petroleum industry in the United States during the past three years.

Production Equivalent of Shut-in Potential

To determine the economic effect of the shut-in potential, it is necessary to know the production-equivalent of the potential. This calculation follows from the data shown in Tables 1 and 2 and is presented in Table 3. It is there seen that in 1928 a production of 208,000,000 bbls. was suppressed; in 1929, the potential declined slightly; and in 1930, a production of 377,000,000 bbls. was held back in the ground. For the three-year period, 1928-1930, a crude oil production of 574,000,000 bbls. was suppressed by curtailment of completed wells and this figure, consequently, is the volume of crude oil that our shutin potential would yield in one year if the wells involved were permitted to flow normally.

To determine the 1931 production if restrictions were removed, we may make the following calculation:

	(Bbls.)
Production from old wells	672,000,000
Production from shut-in potential	574,000,000
Estimated production from drilling under way	260,000,000
Total	1,506,000,000

Thus if proration were abandoned, the theoretical production of the United States in 1931 would be 1,500,000,000 bbls., or about 70 per cent in excess of expected demand.

Inventory-equivalent of the Shutin Potential

Having established a method of converting shut-in potential into its annual production-equivalent, it now becomes possible to measure the economic effect of the potential. Obviously, if the shut-in production were actually produced, its effect would become that of actual production, the excess going into storage and adding to the weight of the aboveground inventory. So long as the potential is held in the ground, however, the effect is less than if the oil were actually produced, for the reason that the lifting and storage costs are saved. Yet the effect is substantial because the drilling cost has been expended. The effect of the shutin potential is obviously less than that of its annual production-equivalent by some indeterminate percentage. As drilling costs are by and large roughly one-half the sum of lighting and storage costs, it is logical to assume that if we take one-half the annual production-equivalent of the shutin potential and add this quantity to inventory, we obtain a tentatively satisfactory measure of the economic weight of the potential.[1]

In Table 4 the inventory-equivalent of the shutin potential (i.e., surplus initial) is calculated for the past three years, and it is seen that the shutin potential of the United States has the economic effect of an addition of 287,000,000 bbls. to aboveground inventories. It follows that this condition is bound to have an

(Continued on Page 122)

TABLE 1—DETERMINATION OF THE RELATION BETWEEN INITIAL PRODUCTION AND THE ANNUAL RATE OF PRODUCTION OF CRUDE OIL IN THE UNITED STATES

Year—	1 Actual production (million bbls.)	2 Estimated production without drilling during year (75% of previous year's production) (million bbls.)	3 Difference to be contributed by aggregate initial production for year (million bbls.)	4 Aggregate initial production of new wells* (million bbls.)	5 Ratio of "difference" to aggregate initial Col. 3÷Col. 4†
1916	301	211	90	1.601	56
1917	335	225	100	1.511	67
1918	356	251	105	1.614	65
1919	378	267	111	3.554	31
1920	443	283	160	3.508	46
1921	472	332	140	2.828	50
1922	558	354	204	4.266	48
1923	732	419	313	6.105	51
1924	714	549	165	3.255	51
1925	764	535	229	4.300	53
1926	771	572	199	3.684	54
1927	901	579	322	4.918	66
1928	901	675	226	8.366	..
1929	1,007	675	332	6.170	..
1930	896	756	140	9.956	..

*From The Oil and Gas Journal. See January 29, 1931, Page 94. †The median ratio is 52; thus the aggregate initial for any given year may be converted into its annual production equivalent by multiplying the aggregate initial by 52.

TABLE 2—DETERMINATION OF THE SURPLUS INITIAL (THAT IS, POTENTIAL) BROUGHT IN IN THE UNITED SATES IN 1928, 1929, 1930

Year—	1 Aggregate initial (million bbls.)	2 Initial needed to balance decline of old production (Col. 3 of Table 1÷52) (million bbls.)	3 Surplus initial left over in form of crude oil potential (million bbls.)
1928	8.366	4.350	4.016
1929	6.170	6.380	—0.210
1930	9.956	2.696	7.261
Total—	24.492	13.425	11.067

TABLE 3—ANNUAL PRODUCTION IN 1928, 1929 AND 1930 SUPPRESSED IN THE FORM OF CRUDE OIL POTENTIAL

Year—	1 Surplus initial (Col. 3, Table 2) (million bbls.)	2 Equivalent in annual production (Col. 1×52) (million bbls.)	3 Actual production (million bbls.)	4 Corrected production if potential had been produced (Col. 2 and Col. 3) (million bbls.)
1928	4.016	208	901	1,109
1929	—0.210	—11	1,007	996
1930	7.261	377	896	1,273

TABLE 4—CALCULATION OF THE INVENTORY EQUIVALENT OF THE CRUDE OIL POTENTIAL IN 1928, 1929 AND 1930

Year—	Annual production equivalent of surplus initial (i.e., surplus crude oil potential) See Col. 2, Table 3 (million bbls.)	Inventory equivalent of surplus initial Col. 1÷2. Assumption: Drilled up oil stored underground has one-half the economic effect of above-ground inventories (million bbls.)
1928	208	+104.0
1929	—11	—5.5
1930	377	+188.5

*Before Petroleum Division, A.I.M.E., New York.

[1]Later on it may be possible to establish a more exact discount factor to be applied to the annual production equivalent.

C. E. BEECHER ELECTED CHAIRMAN BY PETROLEUM DIVISION, A.I.M.E.

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Feb. 23.—C. E. Beecher, chief production engineer for the Empire Gas & Fuel Co., Bartlesville, Okla., was elected chairman of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers at the one hundred fortieth meeting of the Institute held here. Other officers elected for 1931 were as follows: Associate chairman, L. L. Brundred, consulting engineer, of Brundred & Brundred, Los Angeles; secretary-treasurer, H. C. George, professor of petroleum engineering, Oklahoma University, Norman; chairman of executive committee, C. E. Beecher, Empire Gas & Fuel Co., Bartlesville, Okla.; members of executive committee, C. V. Millikan, chief production engineer, Amerada Petroleum Corp., Tulsa; A. C. Rubel, assistant production manager, Union Oil Co., Los Angeles, Calif.; and J. R. Suman, production manager, northern division, Humble Oil & Refining Co., Houston, Tex.; vice chairman production engineering, E. H. Griswold, production engineer, Continental Oil Co., Ponca City, Okla.; associate vice chairmen of production engineering, Joseph Jensen, chief petroleum engineer, Associated Oil Co., Los Angeles; Earl Oliver, Earl Oliver & Co., Ponca City, Okla.; and W. V. Vietti, production engineer for The Texas Company, Wink, Tex.; vice chairman for production, Earl A. Trager, consulting geologist of Tulsa; associate vice chairman of production, R. E. Somers, geologist for the Gulf Companies, Pittsburgh, Pa.; vice chairman for economics, H. J. Struth, economist, Houston; vice chairman for engineering research, Harry H. Hill, Standard Oil Development Co., New York; vice chairman for engineering education, H. C. George, Oklahoma University; vice chairman for refinery engineering, H. W. Camp, Cities Service Companies, Tulsa; and chairman for unit operation of oil pools, Earl Oliver, Earl Oliver & Co., Ponca City.

Engineering Research

Considerable stress on petroleum engineering and research was evident at this year's meeting. The joint session on engineering research and production engineering, of which H. H. Hill served as chairman and W. K. Whiteford as vice

(Continued on Page 122)

Unit Operation at Kettleman Hills

Plan Made Effective for Development of North Dome Is Outstanding Accomplishment. Means Much to Entire Industry

By Joseph Jensen
Chief Petroleum Engineer, Associated Oil Co., Los Angeles*

California's outstanding contribution to unit operation is the plan of development now established for the North Dome of the Kettleman Hills. Beginning April 1, 1931, the Kettleman North Dome Association will control the unified operation and development of 10,800 acres of proven and semiproven oil land, and at the same time the Standard Oil Co. of California will operate as another unit its fee land of 9,460 acres of similar character. The holdings of the two companies are in a checkerboard mile square pattern. In addition to this, 410 acres of land may yet be included in the Kettleman North Dome Association unit and 530 acres of land are definitely out of either unit. The owners of some of this land have expressed their intention of cooperating in a reasonable way with these two units. Co-operative agreements are now in force as to most of this field.

*Published by permission of J. H. Jenkins, general manager of the production division, Associated Oil Co., San Francisco, Calif. Presented before the petroleum division, American Institute of Mining and Metallurgical Engineers, New York.

Under the definitions of a unit pool and a near-unit pool, given in the February, 1930, meeting of the institute, the operation at Kettleman Hills will be a near-unit operation, but because of the size of the structure and its proven highly productive character, the arrangement concluded on January 31, 1931, in the approval of the Kettleman North Dome Association agreement by Secretary of the Interior Ray Lyman Wilbur and by California State Oil and Gas Supervisor R. D. Bush, is of outstanding importance to the entire oil industry.

The North Dome of the Kettleman Hills is a clearly defined anticline, almost perfect in its surface exposures for geological textbook demonstration. It was long regarded as a possible source of oil and was withdrawn as early as 1909 by President Taft from oil development upon the recommendation of Dr. Ralph Arnold, then a geologist in the United States Geological Survey, and Dr. George Otis Smith, director of the survey.

High Gasoline Content

Several wildcat wells were drilled in the hills, but it remained for the Milham Exploration Co. to make the discovery of commercial production. Milham's No. 1 Elliott blew out on October 5, 1928, when the hole was 7,095 feet deep, in redrilling, although the hole had been originally drilled to 7,236 feet. Production from this well has declined from 4,200 bbls. of 60 gravity oil to approximately 1,500 bbls. This flow of oil was accompanied by enormous volumes of gas, amounting at times to as much as 89,000,000 feet per day.

Wells encounter the top of the Temblor formation, which is the source of the oil, at depths varying from 6,120 to 7,050 feet. The limits of the pool have not been defined by drilling. The top 1,000 feet or more of the oil zone has proven to be of a character similar to that shown by the discovery well, so that an oil which is 90 per cent gasoline is produced along with 25,000 to 30,000 feet of gas per barrel of oil, furnishing 34 gallons of casinghead gasoline per barrel, with the result that 1 bbl. of this light oil is equivalent as a source of gasoline to approximately 3.87 bbls. of southern California crude. Other wells drilled deeper seemed to secure on their initial tests a darker and heavier oil, so that operators had hope that the structure would furnish a different oil without so much gas.

On September 4, 1930, Superior Oil Co.'s No. 1 Huffman was completed at a depth of 8,323 feet with an initial production of about 10,000 bbls. of 40 gravity oil, and a penetration of 1,258 feet of the zone. The production of this well has since increased to as much as 13,595 bbls. per day and 41,920,000 feet of natural gas. The oil is 37 to 39 gravity and the gasoline content of the natural gas is 1.64 gallons, thus furnishing about 5 gallons of gasoline per barrel of oil. The oil itself contains 52 per cent gasoline, which percentage is nearly twice as great as that of southern California crude.

On January 24, 1931, Petroleum Securities Co.'s No. 2 Felix was completed at a depth of 8,100 feet, with a penetration of 1,274 feet of the Temblor formation. Petroleum Securities' No. 2 Felix

(Continued on Page 123)

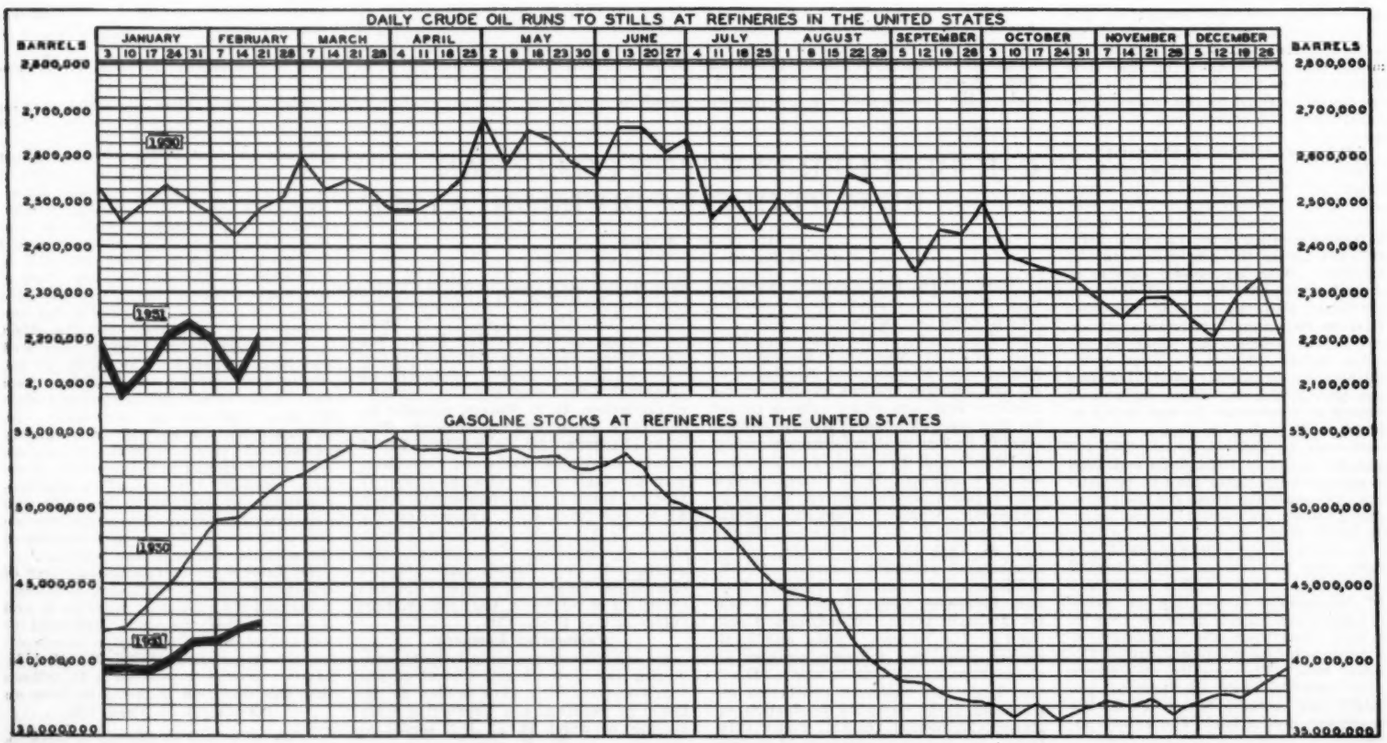
AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending February 21.

	Week ending February 14				Week ending February 22, 1930			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	428,600	7,370,000	7,536,000	100.0	3,165,300	8,409,000	6,244,000
Appalachian	93.8	83,000	1,362,000	1,062,000	91.0	560,000	1,656,000	654,000
Indiana, Illinois, Kentucky	97.5	275,100	5,059,000	2,029,000	98.6	1,928,300	7,601,000	2,960,000
Oklahoma, Kansas, Missouri	89.4	264,400	2,994,000	3,334,000	89.1	1,979,800	4,650,000	3,104,000
Texas	91.9	559,300	6,940,000	10,022,000	90.2	4,203,900	7,853,000	12,107,000
Louisiana and Arkansas	98.3	133,300	1,732,000	2,367,000	96.8	1,259,200	2,772,000	1,401,000
Rocky Mountain	93.1	49,000	1,781,000	948,000	93.6	491,100	2,831,000	1,036,000
California	98.8	428,600	15,621,000	101,468,000	96.3	4,010,600	15,798,000	109,402,000
Total United States	95.7	2,211,300	42,859,000	130,316,000	94.7	17,508,200	51,570,000	136,908,000
Texas Gulf Coast	100.0	424,900	5,836,000	7,632,000	99.4	3,218,700	6,768,000	9,479,000
Louisiana Gulf Coast	100.0	92,400	1,535,000	1,353,000	100.0	814,400	2,440,000	1,401,000

Report for week ending February 21 not available on account of Washington's birthday holiday.

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

Personal

Mr. S. B. Daugherty

WE HAVE still further strengthened our organization, particularily in the engineering division, by placing Mr. S. B. Daugherty in full charge of our development and research work.

Mr. Daugherty is well known to natural gas men as a designer, technical gas man and consulting engineer. His working years have been spent in designing gas compressors and in intimate contact with gas men and their problems.

He will be in complete charge of all development and research work ot this company, and will study the application of TRANSIT PUMPS and TRANSIT Gas ENGINES to the oil and gas industry to the end that these products will maintain, in the future, the leadership they have always enjoyed.

Los Angeles
Tulsa
Houston

NATIONAL TRANSIT
PUMP & MACHINE CO.
OIL CITY, PA.

New York
Philadelphia
Cleveland
Pittsburgh

TULSA and MID-CONTINENT FIELD
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BACK TO TEAMS AND BARGES

The present opposition of the railroads to the pipe lines is a 60-years-after echo of the equally futile effort of the teamsters and boatmen of the Pennsylvania oil region to stop pipe laying.

For two generations even railroad men have smiled with the rest of the world at the simple assumption that pipe lines should not be laid because they would take work from those primitive handlers.

But today the Association of Railway Executives is trying to do exactly the same thing without recognizing how foolish it appears.

With all due respect to present-day railway management the past record of the railroads has been consistently on the same plane as that of the Oil City teamsters and boatmen of 60 years ago.

The railroads have persistently fought the extension of inland waterway transportation. The Panama canal was built in the teeth of the most determined antagonism by the rail transportation systems.

They have been a little late in fighting the pipe lines, the motor trucks and buses, but they are now trying to make up for lost time.

The agitation for repressive legislation against the motor bus and truck, evident in so many states and at Washington, is undoubtedly inspired by railroad influence.

The proposed legislation for separation of pipe line companies and oil companies springs from the same source.

An ideal statute from the railroad viewpoint would presumably prohibit any motorist from using his own car outside his home town, limit trucks to city limit delivery and tax buses so high they could not charge less than the railroad fare.

That, at least, is the effect apparently aimed at by railroad effort to hinder public convenience in order to retain revenue for the rails.

Their opposition to pipe lines is on the same order. Their only interest is to make it harder for the pipe lines to compete with them. The public interest can not be considered since as the public is more efficiently and economically served by the pipe lines now why seek to put difficulties in their way?

It would be as sensible to ask the oil industry and the public it serves to go back to the days of handling barrels by teamsters and barges as to forego the advantages of pipe lines in order to increase railroad revenue.

The point, so often forgotten by railroad management in the past, that revenue should be based on service is the controlling factor in modern operations. No industry or business is entitled to consideration save for what it gives. There is no vested right to monopoly in a service than can be rendered to the public more efficiently and at less cost.

The railroads are no more entitled to protective legislation to perpetuate their job and less efficient methods than were the Allegheny River teamsters and boatmen of the early sixties.

The argument that since the railroads were forced to divorce themselves from the coal properties the oil companies and pipe line companies should also be separated is easily demolished by W. R. Boyd, executive vice president of the American Petroleum Institute:

"There is no parallel," Mr. Boyd says. "The carriers were engaged primarily in the business of providing transportation. Except for coal used to fuel their locomotives the railroad-owned coal was sold in competition with that produced by mines lacking a railroad tie-up. Oil and gas companies are not primarily in the transportation business, but in producing, storing, processing and selling oil and natural gas. They are interested in pipe line transportation only so far as is necessary to the economic conduct of their principal operations, and, fundamentally, pipe lines are now, and always have been, merely extended plant facilities."

Separating oil companies from these facilities would merely obstruct their operations and inevitably lessen their efficiency and economical service to the consuming public. Even the railroads are today planning group consolidations of transport systems in order to attain efficiency and economy. Yet they seek to impose segregation with all its consequent additional cost and inefficiency on the oil industry.

In fact the railroad opposition to pipe lines is so utterly without reason, except the antiquated argument of the oil region teamsters and boatmen that progress should not be allow to interfere with their jobs, that it will not stand up under any sort of analysis.

In the first place the railroads are physically incapable of taking over the pipe lines' job. If the country had had to depend upon railroad movement of oil and gasoline we should never have had the motor development we have today.

With their frequent inability to avoid freight congestion intensified by the attempt to handle the petroleum industry's traffic, filling stations "just out of" gasoline would be a familiar experience.

What the price of gasoline would have been if subjected to railroad rates can only be imagined. It certainly would not have put motoring within reach of the people who enjoy it today.

But apart from these considerations it would have been physically impossible to move our oil and gasoline without the pipe lines.

"If every tank car in the country was loaded with petroleum, before the first consignment could reach the eastern refineries there would be a shortage of tank cars in the oil fields and of petroleum products in the market."

Contrasted in speed and cost of service the pipe lines handle the oil industry's freight more than three times as fast and for about one-third of the expense. The gasoline lines are a direct outcome of that comparison in the transportation of crude by the two methods.

Without meaning to be offensive it may be suggested that if the railroads had been anything like as efficient as the pipe lines they would not need to seek legislative protection against competition from either the pipe lines, waterways or motor buses and trucks.

The effort now being expended in opposing the pipe lines, trucks and buses, if exerted towards increasing the efficiency of railroad transportation would do a lot more to increase railway revenue.

Even on the score of investment the railroads can make no plea that is not just as good for the taxpayers who have paid $15,000,000,000 for highways and as much more for motor vehicles. In the matter of taxes the comparison is equally impressive, motor vehicle owners paying nearly four times as much as all the railroads.

On every point brought up the public interest is paramount in the case for the pipe lines whereas the sole motive in the railroad appeal is that voiced by the teamsters and boatmen who could not look beyond their own pockets.

DRESSER COUPLINGS Were Used!

The one re-occuring phrase in pipe line construction—
"Dresser Couplings Were Used."

This implies a substantial, high class job. It means the best type of joint was wanted. It insures long years of service without joint troubles from contraction, expansion or high pressure.

Whenever you come across this phrase in pipe line news, you know the engineers have planned a factor of safety in the joints as high as, or superior to that of the pipe.

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BRADFORD PENNSYLVANIA

Independent Completes Laboratory

New Building at Oil City, Pa., Refinery Houses Complete Equipment to Carry on Research Work and Plant Testing

The Independent Refining Co. recently completed and is now using a new laboratory at its Oil City, Pa., refinery. The laboratory, in a building specially designed for that purpose and with its new equipment, is considered a model for refineries similar in capacity and type to that of the Independent company. The Independent refinery has a rated capacity of 2,000 bbls. daily and in addition to the usual light oils, manufactures a complete line of lubricants and wax.

The laboratory was designed to provide facilities for carrying on research work as well as all routine testing in connection with plant operations. The two-story building is of fireproof construction, consisting of dark red rough surfaced brick laid in black mortar and with concrete trim. Eighty per cent of the wall space about which the counters supporting the various pieces of equipment are placed, and about which the work is done, is of plain and frosted glass set in steel sash providing a most perfect light for daylight operations. For night shifts ample 100-watt daylight lamps which are scientifically located provide a "daylight" illumination free from distracting shadows.

The laboratory is arranged so that plant control work passes in routine order from one piece of testing apparatus to that of the next in importance and no space is wasted. The building and fixture designs were prepared by Russell R. Buckham, chief chemist of the company.

On the first floor in the larger room is found Mr. Buckham's office. Physical apparatus for the plant control is placed on side counters and on center table. The covering of the counters and table is of stainless steel. The lines connecting with the table drains are so arranged that all slops are conveyed to a concrete trap outside the building.

All lines, including steam, air, vacuum, water, and gas are arranged in an orderly manner under the metal shelving, and the necessary connections to the various pieces of equipment are passed through the metal top. Ample concrete conduit is arranged to carry all necessary pipe to the operating table near the center of the room, and from this conduit the pipes are carried to their proper places above the table top.

Special Rooms

From this larger laboratory are smaller units, first a flash and fire room equipped with stainless steel shelving on steel supports on two sides of the room and upon this shelving is located the opened and closed tag, Foster cup, four Cleveland open cups, and Pensky-Marten closed flash testing apparatus, together with two Conradson carbon testers.

At proper locations on the wall back of the shelves are located the necessary 25-watt red lamps, giving sufficient light for operations, but still enabling the operators to detect the slightest flash from any products under test. Beneath this shelving is installed a motor driven vacuum pump which is capable of producing a 29-inch vacuum at several points both on the first and second floors. This laboratory is also equipped with registers and ventillating fan of sufficient capacity to remove all fumes and provide ample fresh air for the otherwise tightly constructed room.

To the right of the laboratory just described, is a hot room equipped with steam radiators. This room is of sufficient capacity to carry on experiments with lubricating oil and wax at elevated temperatures.

Next to this is the "cold room," where a temperature of 25° F. below zero may be obtained. The room is cooled with ammonia coils hung on three sides; also a cold box for very low temperature work.

These rooms, as is the cold box, are heavily insulated with compressed cork and tile.

The antiknock testing laboratory adjoining is equipped with the most improved apparatus for rapid determinations.

Under the spacious stairway leading to the second floor is provided locker rooms and lavatory.

Second Floor

Upon entering the second floor the visitor is at once impressed with the abundance of light provided by the windows previously mentioned. This entire floor is equipped for research, except that in one corner has been placed a storage room provided with steel shelving for systematic storage of laboratory supplies. The benches in this room are of steel construction with ebonite tops upon which is found complete distillation equipment, ASTM oil and moisture tester, contact and percolating filters, together with gum, sulphur determination apparatus, and apparatus for determining corrosion, demulsibility of oils, as well as thermo viscosimeters.

Upon this floor is located the refrigerating equipment supplying the cooling for the cold room below. In a neat cabinet is stored chemical supplies.

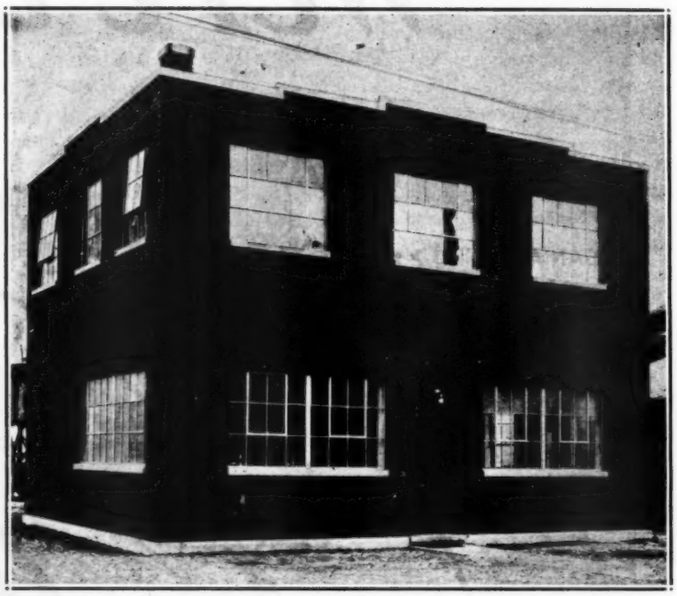
Beneath the wall benches above mentioned is found the same unique piping as on the first floor. Steam lines are heavily insulated. Air lines, water lines, vacuum lines, drain lines all bear a coat of black luster paint adding greatly to their neat appearance against the sand finished walls.

Three separate drain pipes are provided for this floor, one for oil which reaches the same trap outside the building as do the oil from the first floor drains, one for water direct to the sewerage system, and one for chemicals.

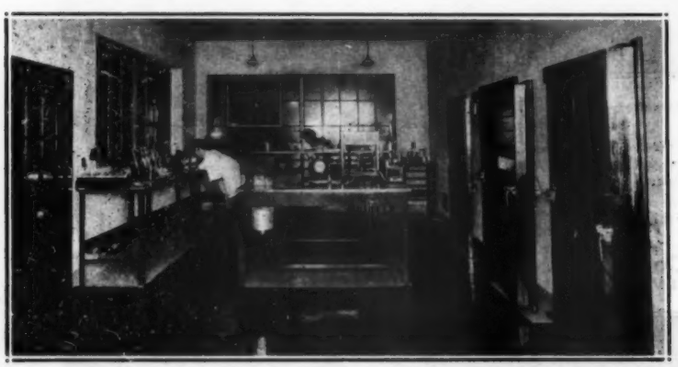
Not only have the windows been designed to admit maximum light but also serve other purposes. The two bottom panes are plain to permit the direct rays of sunlight on the benches where the tests are being made while the upper portion of the window is frosted to keep the glare of sun from the eyes of the chemist. The whole window assembly is unique, being arranged to swing outward in case of an explosion instead of shattering.

In addition to the careful fire protective means taken in construction there are other precautions. Each bench throughout the laboratory is equipped with a quart fire extinguisher and a large container of foamite is kept on each floor.

View of research and experimental laboratory.



New building devoted exclusively to plant laboratory work.



Testing room of laboratory on first floor of building. First door in right rear opens into flash room; second door, refrigerating room and third door, the heating room.

View of research and experimental laboratory on second floor of new laboratory of the Independent Refining Co. at its Oil City, Pa., refinery. P. S. Tarbox (right), manager of the company and Russell Buckham, chief chemist, are shown in laboratory.

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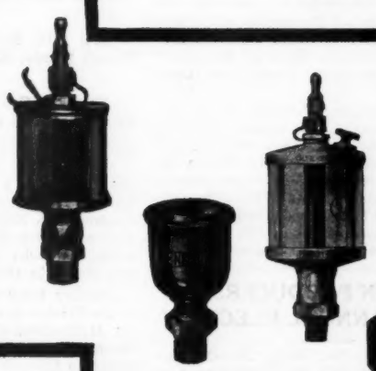

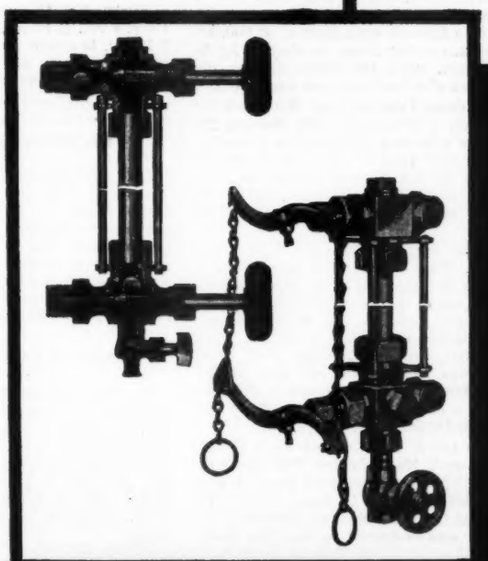

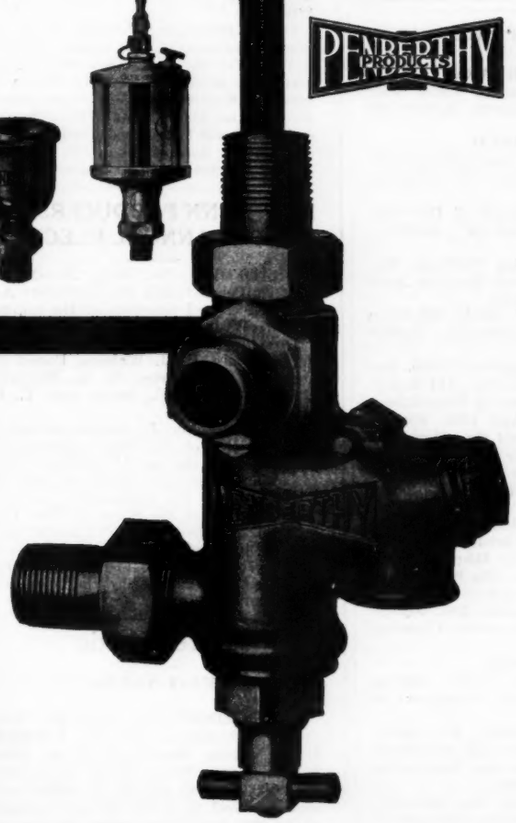

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RAILROAD LAW WILL PRORATE EAST TEXAS

AUSTIN, Tex., Feb. 24.—Robert R. Penn of Dallas, chairman of the central proration committee, said today that developments of the last few days had assured proration of the new East Texas oil fields in an effective but unanticipated manner.

"Present indications," Mr. Penn said, "are that the railroads themselves, as well as the Railroad Commission, will be the prorating agency. This has developed as a result of the digging up of some ancient orders of the Railroad Commission, which have been amply sustained by the courts of the State, that the railroads must take all shipments ratably from shippers. In other words, the railroads cannot play favorites, cannot contract to take one shipper's shipments in preference to another and must divide all shipments among the offerers of cargoes."

MAGNETIC STORM

Tucson, Ariz., observatory of the United States Coast and Geodetic Survey advise that a moderate magnetic storm began at 5 a.m. on February 24. Its telegram reads:

"Storm began twenty-fourth. Five. Moderate."

OIL MAN'S CALENDAR

FEBRUARY

24-26 — Columbus, Ohio, Ohio Petroleum Marketers Association, Neil House.

MARCH

2-4—Chicago, first midyear meeting, A.P.I. Division of Marketing, Stevens Hotel.

3—Chicago, Board of Directors, American Petroleum Institute, Stevens Hotel.

10-12—Excelsior Springs, Mo., Western Petroleum Refiners Association, Elms Hotel.

11-13—Detroit, Mich., Michigan Oil Men's Association, Statler Hotel.

16-22—Los Angeles, Calif., second annual Exposition, Oil Equipment and Engineering Exposition.

17-18—Columbus, Ohio, convention, Ohio Oil and Gas Men's Association, Deshler Wallick Hotel.

19-20-21 — San Antonio, Tex., American Association of Petroleum Geologists, Gunter Hotel.

20—Los Angeles, Calif., Spring Meeting, A.P.I. Division of Production, Pacific Coast District.

23-24—Chicago, Ill., Independent Oil Men of America.

30-3—Indianapolis, Ind., eighty-first meeting, American Chemical Society.

APRIL

11-19—Detroit, Mich., convention, Aeronautical Chamber of Commerce.

13-18—Philadelphia, Pa., eighth annual convention and exposition, American Oil Burner Association, Ben Franklin Hotel.

15-16—St. Louis, Mo., first midyear meeting, A.P.I. Division of Refining, Statler Hotel.

23-24—Cleveland, Ohio, semiannual meeting, National Petroleum Association, Hotel Cleveland.

MAY

4-9 — Charlotte, N. C., Good Roads Convention.

11-14—Memphis, Tenn., Natural Gas Department, A.G.A.

19-21 — Tulsa, Okla., Natural Gasoline Association of America, Mayo Hotel.

27-29—New York, National Foreign Trade Council.

JUNE

3-4—A.P.I. Division of Production, Baker Hotel, Dallas, Tex.

15-18—Madison, Wis., fourth annual Oil and Gas Power Meeting, American Society of Mechanical Engineers.

Embargo and Tariff Proposals Rejected By House Committee

WASHINGTON, D. C., Feb. 23.—All embargo and tariff bills including the proposed limitation on oil imports today were rejected by the House Ways and Means Committee by the adoption of the following resolution:

"Whereas, in the opinion of the committee there would not be sufficient time during the remainder of the present session for the consideration of tariff or embargo bills, therefore be it resolved that the consideration of all such bills referred to and pending before the committee be postponed."

The committee does not expect to meet again this session. The postponement resolution was adopted 13 to 7, but the roll was not announced. Before it was adopted, Democratic Leader Garner moved that oil legislation for a protective tariff be excepted but was defeated, 13 to 7. There was no direct vote on the Capper-Garber oil imports restriction bill.

Garner discussed with Chairman Snell of the Rules Committee his proposal for an investigation of the whole oil industry, but it seemed doubtful whether anything would be done. Such an investigation, it was estimated, would cost about $100,000.

Orville Bullington, chairman of the executive committee, and Russell Brown, secretary of the Governors' Oil Conference, are persisting in their efforts to have the Senate pass the Capper embargo bill and stated that efforts to get legislation will be resumed when Congress reassembles. As hopeless as the situation is they are not ready to admit defeat.

N. W. PENN PRODUCERS HOLD ANNUAL ELECTION

BRADFORD, Pa., Feb. 21.—Northwestern Pennsylvania Oil Producers Association elected directors at the annual meeting Wednesday afternoon.

Directors elected were E. C. Emery, W. J. Healy, H. J. Walters, Forest D. Dorn, D. T. Andrus, H. G. Barcroft, R. T. Zook, A. E. Booth and T. P. Thompson, Jr.

T. P. Thompson, Jr., gave a resume of the activities of the local conservation board covering the last 11 months of proration and presented figures to indicate the success of the movement.

R. T. Zook of the Sloan & Zook Co., in a talk on the subject "Conservation," pictured by graphs and charts the amount of overproduction he said had been withheld from the market by the proration movement.

Late Fields

EAST TEXAS

SHREVEPORT, La., Feb. 23.—Natural Gas Production Co.'s No. 1 Alvord, B. C. Jordan Survey, deep gas area, Panola County, Texas, Field, which tested 4,000,000 feet of gas at 4,698 feet, was deepened to 4,720 feet and gauged 40,000,000 feet. This makes the fourth successful completion in the Trinity horizon in this area.

JOINER FIELD LINE

FORT WORTH, Tex., Feb. 24.—G. F. Beckler, pipe line contractor, who constructed the Inland Waterways Pipe Line Co.'s 4-inch out of the Joiner Field to the loading rack at Friars Switch on the railroad, 3 miles north of the field, is to start construction on a 6-inch line from this same field to a loading rack and refinery which will be constructed at Overton approximately 8 miles west of the pool. Name of the company owning the line is Central Pipe Line Co.

KANSAS

C. B. Davis and Aladdin Petroleum Corp.'s No. 1 Ritz, SE cor. SW, Section 19-19-1w, a half mile north of the discovery deep sand well in the Ritz-Canton area, McPherson County, Kansas, was swabbing 12½ bbls. an hour and made 470 bbls. in seven hours. The oil was found in the Viola at 3,430-39 feet.

Another large gas well was completed in the Decker gas pool, McPherson County. McPherson Oil & Gas Co.'s No. 1 Meyers, C SE, Section 14-19-2w, is estimated to have an open flow of 30,000,000 feet of gas a day, from the chat at 2,889-2,930 feet, with the tools still in the hole and the test not yet completed.

The Texas Company and Barnsdall Oil Co.'s No. 1 Elmore, C NE, Section 22-19-2w, a mile east of Galva, on the south edge of the Decker gas pool, made 50 bbls. of oil the first two hours and increased to 30 bbls. an hour during the first 24 hours from the chat at 2,994-96 feet.

In the northern part of McPherson County, Tidal Oil Co. and others' No. 1 Peel, in Section 35-17-3w, found a hole full of water in the Wilcox sand at 3,636-46 feet, and it will be abandoned.

McPherson Oil & Gas Co.'s No. 1, in the C SE, Section 12-20-2w, Ritz Pool, McPherson County, an old well drilled deeper from 2,974 feet, found a show of oil and a hole full of water in the Viola at 3,410-14 feet.

Lario Oil & Gas Co. and Shell Petroleum Corp.'s No. 4 Miller, NW cor. SE, Section 1-20-2w, in the Ritz Pool, flowed 1,398 bbls. of oil in 12 hours cutting 10 per cent, from the chat at 2,940-80 feet. The rig was destroyed by fire last week and a new one was erected and completed a few days ago.

Shell Petroleum Corp. is connecting the new well of the Washoma Petroleum Corp. in the Palmer Pool, in Harvey County. The well is No. 1 Zook, C NW SW, Section 36-22-2w, which was flowing 5 bbls. of oil an hour from the chat against a back pressure of 300 pounds.

Derby Oil Co. and Shell Petroleum Corp.'s No. 2 Sadey, C SE SW, Section 2-19-2w, is a new location. The No. 1 on the same lease was recently completed for 11,000,000 feet of gas a day.

(Continued on Page 121)

High Spots in Field News

MISSISSIPPI

Jackson Field may be limited to south.

KANSAS

Ritz-Canton area continues busiest spot in State.

NORTH LOUISIANA-ARKANSAS

Show of gas in Bienville Parish test. Showing in Union County test.

GULF COAST

New productive areas indicated in Victoria County, Texas, and La Fourche Parish, Louisiana.

EAST TEXAS

Second and third completions in Kilgore Field rated at 10,000 bbls. each. Lathrop well on test flows 14,000 bbls.

OKLAHOMA

State production passes 500,000-bbl. mark first time in 1931, due to increased allowable from Oklahoma City Pool.

SOUTHWEST TEXAS

Revival of work in Southwest Texas areas. Good showing in northwestern Duval County. Goliad County well 500 bbls.

WEST TEXAS, NORTH TEXAS AND PANHANDLE

Terrell County test, deepened, shows no increase in gas. Big Lake wells decline since tubing. Upton County wildcat looks dry.

CALIFORNIA

Oil bills to be offered in legislature, one modeled on Oklahoma statute. North Dome, Kettleman Hills, Association elects officers.

ROCKY MOUNTAIN AREA

Eastern Colorado area looks more promising. Showing in well near Denver stimulates interest. Hobbs, N. Mex., outlet set at 31,328 bbls.

HEARING ON REPEAL

OKLAHOMA CITY, Okla., Feb. 24.—The oil and gas committee of the Oklahoma House of Representatives, in a hearing of testimony for and against the Cham Jones bill, which provides for a repeal of the conservation law of 1915, reconvened today after a several days' adjournment, and heard first from witnesses who favored the Jones bill.

UNIT PLAN PERMANENT

WASHINGTON, D. C., Feb. 24.—The unit plan of operation of an oil or gas pool or field, as temporarily effected in the Kettleman oil fields in California under a special act of Congress approved July 3, 1930, is permanently authorized under a bill (S. 6,128) favorably reported to the Senate by its committee on public lands.

SCORE SHEET ON OIL PRODUCTION

Below is shown allotted average daily production in the United States from October 1, 1930, to April 1, 1931, suggested by the American Petroleum Institute's special committee on the economic situation, and the actual daily average production during the week ending February 21:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
Okla., Kans., S.W. Tex., N. Tex.*	953,700	904,148	.....	49,552
West Texas and S.E. New Mexico	316,300	285,118	.....	31,182
North Louisiana-Arkansas	86,400	94,720	8,320	.....
Gulf Coast	177,800	177,448	.....	352
Rocky Mountain	58,600	60,850	2,250	.....
California	530,100	528,500	.....	1,600
Other fields	110,600	108,000	.....	2,600
Total	2,233,500	2,158,784	10,570	85,286

Net average daily underproduction, 74,716 bbls.

*North Texas includes North, Central and East Central Texas and Texas Panhandle.

Oklahoma Crude Output Is Increased

For the First Time This Year Production Exceeds 500,000 Bbls. per Day. State Potential Reduced. Big Wells Continue

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

A substantial increase was reported in crude oil production from Oklahoma during the seven days ending February 21. The daily production exceeded 500,000 bbls., a new peak for the year. The upswing is due to the increase in the allowable flow from the Oklahoma City Field.

The Standard Oil Co. of Indiana extended relief to the stripper wells in Bird Creek, Sperry and Skiatook areas, in Tulsa and southern Osage Counties. The company agreed Saturday, February 21, to purchase approximately 1,200 bbls. of distress oil from 1,500 wells which have been shut in since January 1, when the Prairie Oil & Gas Co. quit purchasing crude oil. The oil will be handled by the Stanolind Crude Oil Purchasing Co. under a five-year contract.

The announcement of the completion of negotiations was made by the committee of producers and it is expected that by the middle of the week the oil will be moving through the pipe lines. The contract is similar to that offered to the producers in the Alluwe, Coody's Bluff and Childers areas, in Nowata-Rogers Counties a few weeks ago.

The decline in flush potential production has improved the technical position of Oklahoma City Field from a production standpoint. Three months ago Oklahoma City's daily potential was rated considerably higher than at present. The reduction is attributed to the decline in gas pressure and to the reduction in development work in the area.

Seminole Potential Dropping

It is also believed by some operators that the same condition exists in the Greater Seminole Field where the potentials for the last few months have been based on the decline curve of 3 per cent per month. The open flow potential of the Greater Seminole area will be taken the first 10 days in April.

It is believed the State's production will register a substantial increase during the next few weeks. The increase in the allowable flow from the Oklahoma City Field was 35,000 bbls. daily, or from 90,000 bbls. a day to 125,000 bbls. a day.

Oil companies owning undrilled leases in Oklahoma County are holding these leases and blocks but there is little likelihood of a wildcat drilling campaign during the present year. Since the discovery of oil in the south Oklahoma City Field leasing and blocking of acreage has been in progress, until it is believed that about all the desirable acreage is now under lease, with the exception of a few acres in the northwestern and north central part of the county, which are reported to have uncertain titles. At the present time many of the companies are seeking to reduce rentals, but a recent survey indicates that only a few attempts have been made in Oklahoma County. Most of the leases in the county are of 10 years' duration, with the majority having from 5 to 9 years yet to run.

Several wildcat tests scheduled for drilling earlier in the year will be delayed until the oil situation improves. It is reported that several drilling contracts have been postponed until a later date.

Six New Wells in One Day

The middle of the week found the Oklahoma City Field back in its stride again, six wells being completed in one day. Phillips Petroleum Co. has five operations that are shut down waiting for the last string of casing, all at a total depth of 6,275 feet or below. The tests are No. 1 Winstead, No. 1 Boultinghouse, No. 1 Davis, No. 1 Mosey and No. 1 Kleinegger. The company has a total of 19 operations in the field, five are either cellars or rigs and the balance are either drilling or shut down waiting for cement to set. Tom Slick Oil Co. has four active operations in the field, two are waiting for cement to set, one drilling and the other a rig.

The Indian Territory Illuminating Oil Co. has five drilling tests in the field and is reconditioning nine wells, and is shut down at three.

Production from the Oklahoma City Field reached a new peak for the year on February 19, when the gauge was 146,090 bbls. from 94 wells, of which 88 were old and 6 were new. Some of the pipe line companies are increasing their shipments from the area and on February 19 shipped out 109,105 bbls. of oil. The Stanolind Pipe Line Co. leads the purchasers in the area and the Prairie Pipe Line Co. has increased its runs.

Hall & Briscoe have sold to the Indian Refining Co. the 248,000 bbls. of Oklahoma City crude oil that has been stored in the Champlin Refining Co.'s tanks at Enid, Okla. The Champlin company will deliver the oil to the Texas-Empire Pipe Line Co.'s line in Section 18-8-7, at Seminole, and the Texas-Empire will deliver the crude to Lawrenceville, Ill., where the Indian Refining Co.'s plant is located.

Phillips Has Gusher

Phillips Petroleum Co. and others completed another gusher in the Oklahoma City Field during the week that is believed to be one of the largest wells ever completed in the State. It is estimated between 75,000 and 100,000 bbls. a day. The well is No. 1 Nunn, SE cor. NE NW, Section 10-11-3w, flowed 2,706 bbls. the first hour, 2,598 bbls. the second hour and increased to 3,017 bbls. the fourth hour, flowing through a 4-inch choke against a back pressure of 450 pounds. The well made a total of 11,001 bbls. of oil in four hours. The gas was estimated at 47,000,000 feet a day. Production was found in the Wilcox sand at 6,328-6,505 feet. The well is cased with what is believed to be the longest string of 9-inch casing on record in the Oklahoma City Field and was landed on top of the Wilcox sand. Wells in the Oklahoma City Field are usually completed with 7-inch casing.

Failure South of Konawa

The wildcat test south of the Konawa Field in the southeastern part of Seminole County and south of the Canadian River will be abandoned. The test is the Mid-Continent Petroleum Corp.'s No. 1 Harjo, SW cor. NE NW Section 6-5-6, was bottomed at 2,730 feet in shale. The test is being abandoned at the present depth owing to the fact that none of the usual formations above the Cromwell and Wilcox sands were found in the test and it was believed to be useless to drill deeper.

In the Wanette-Asher Pool in Pottawatomie County, Twin State Oil Co.'s No. 4 Neal, NE cor. NW SE Section 22-6-3, was flowing 60 bbls. an hour. The well gauged 1,285 bbls. in 19 hours when the production test was made from a total depth of 3,592 feet in sand.

In the Wewoka Townsite Pool, Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Co.'s No. 4 Davis, NW cor. SE NW Section 30-8-8, flowed 4,407 bbls. of oil in 24 hours and was flowing approximately 200 bbls. an hour from a total depth of 3,983 feet in the Wilcox sand. Deep Rock Oil & Refining Co.'s No. 3 Douglass (60A), NE cor. SW Section 30-8-8, was drilled to a total depth of 3,206 feet and blew in spraying oil and gas. No estimate was made of the oil or gas. Same company's No. 4 Douglass (50A), SE cor. NW Section 30-8-8, was completed making 10,880 bbls. of oil cutting 10 per cent from the Wilcox sand at 3,930-52 feet.

Pace Petroleum Co.'s No. 1 Hamilton, SW cor. SE NE Section 30-8-8, on a small tract, swabbed 100 bbls. of oil in 24 hours from a total depth of 3,315 feet, and was cleaning out.

Magnolia Petroleum Co.'s No. 1 Reed, NE cor. NE NE Section 26-5-7, has mudded off the gas and will drill deeper. The test was making between 75,000,000 feet and 100,000,000 feet of gas when first drilled into the sand.

Near Completion in Carr City

Several tests are expected to be completed in the Carr City Pool in a few days. Gypsy Oil Co.'s No. 1 Coker, SW cor. NE Section 2-8-5, cemented 8-inch casing at 3,975 feet and is shut down at a total depth of 4,107 feet. Magnolia Petroleum Co.'s No. 1 H. Reed, SE cor. NW NW Section 2-8-5, has cemented casing at 4,070 feet in the Viola lime. Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 4 Fixico, NE cor. SW NW Section 2-8-5, has cemented the casing at a total depth of 3,920 feet and is standardizing. Carter Oil Co.'s No. 8 Coker, NE cor. SE Section 2-8-5, is drilling in the Mayes lime at 3,760 feet. W. B. Pine's No. 1 Tiger, SE cor. NW SW Section 3-8-5, has been completed for 55 bbls. of oil and 190 bbls. of water a day on the swab. The well was plugged back to 4,180 feet.

Developments in Noble County

Magnolia Petroleum Co.'s No. 2 Summers, SE cor. NW SW, Section 4-20-1w, Noble County, found a gas production of 9,000,000 feet per day at 3,445 feet, in the top of the sand and may be drilled deeper before being completed.

Prairie Oil & Gas Co.'s No. 1 M. Upperman, SW cor., Section 22-22-1, on the Otoe Indian allotment, in the northeast part of Noble County, is believed to be running favorably on structure and will test the deep formations. The showings of oil found in the Wheeler sand at 3,950 feet and the gas showing found at 4,415 feet are considered favorable. The test was drilling at 4,450 feet. Comparing the test with one drilled by L. H. Wentz about a mile away, it is logging considerably higher on the formations. Another test drilling in the area is Washoma Petroleum Co. and others' No. 1 Otoe, SE cor. SW, Section 22-22-1, which was drilling at 2,550 feet. Drilling operations at the two locations of the Peerless Oil Producing Co. and others, No. 1, in the NE cor. SE, Section 21-22-1, and No. 1, in the SE cor. NE, Section 21-22-1, both on Otoe Indian allotments, will not be started until the Washoma Petroleum Corp. and others' No. 1 Otoe or the Prairie Oil & Gas Co.'s No. 1 Upperman, is completed.

Magnolia Petroleum Co.'s No. 1 Roberts, NE cor. SE, Section 21-22-2w, was being drilled at 2,720 feet. Twin State Oil Co.'s No. 1 Steward, SW cor. NE, Section 5-20-1w, has drilled the cement plugs at 160 feet where the surface pipe was landed and was drilling deeper. In the Magnolia Pool, the same company's No. 3 Young, SW cor. NW, Section 22-21-2w, was drilling at 3,000 feet. Sinclair Oil & Gas Co.'s No. 2 Waltermire, NE cor. SW SE, Section 31-21-1w, is preparing to spud.

Wilwright Oil & Gas Co. and others' No. 1 Wildgrube, NE cor. SW, Section 14-27-1, Kay County wildcat, which found a showing of oil and gas in the Bartlesville sand at 3,587-3,690 feet, is drilling deeper at 3,725 feet. The owners believe a shot would develop a small producer but will test the deeper formations.

Boucher Oil Co.'s No. 1 Goodwin, NE cor. SW, Section 32-26-1w, another Kay County wildcat test, was underreaming the 8-inch casing to 2,950 feet, with the total depth at 3,030 feet.

Eastern Shallow Areas

The shallow areas in the eastern part of the State are active. Muskogee County and Okmulgee County are supplying completions each week. In the Haskell district, Muskogee County, Francis Oil Co.'s No. 2 Lewis, NW cor. NE, Section 14-15-15, had a show of oil and water and was abandoned at 1,471 feet. H. Smith and others' No. 9 Pouncil, NW cor. SE NE, Section 25-15-15, was shut in as a 1,000,000-foot gas well at 1,318-26 feet. Taylor & Geiger's No. 5 Tucker, NE cor. NW, Section 16-15-15, was spudding. Babcock Brothers and others' No. 2 Harris, CSL NW NW, Section 1-14-

(Continued on Page 104)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Shut down 5,200 ft.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	Drlg. 1,180 ft.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 430 ft.
Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW Sec. 17-2-22w	Shut down 2,550 ft.
White et al's No. 1 Green, SW cor. Sec. 34-10-24w	Shut down 2,800 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Shut down 4,590 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w	Shut down 1,115 ft.

COAL COUNTY

McGraw Oil Co.'s No. 1 Ward, NE SE Sec. 35-1-5	Shut down 250 ft.
Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Shut down 760 ft.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE Sec. 9-3-10w	Shut down 2,282 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.

CREEK COUNTY

Burton-Holmes et al's No. 1 Sankeye, SE SW SW Sec. 5-18-10	Shut down 2,177 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 5,835 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 100 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-19-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	Shut down 2,387 ft.

GARVIN COUNTY

Malarnee et al's No. 1 Phillips, NE SW SE Sec. 24-2-2w	Location.

GREER COUNTY

French's No. 1 Murphy, SW NW Sec. 23-7-21w	Shut down 1,490 ft.

(Continued on Page 86)

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More Kansas Strippers Given Outlet

Chautauqua County Wells Again Have Market. Kansas Has New State Umpire. Interesting Results in Western Areas

By W. A. Spinney
Staff Correspondent, Kansas Fields

During the week relief was given to stripper wells in Chautauqua County, which have been without a market outlet since January 1, 1931. Operators in Chautauqua County, one of the two districts omitted from the relief plan instituted by the Standard Oil Co. of Indiana, about two weeks ago, began pumping their wells Friday, February 20, following an agreement between the Prairie Oil & Gas Co. and the Standard Oil Co. of Indiana. The Prairie Pipe Line Co. made the connections and will deliver the oil to the Stanolind Pipe Line Co. Relief was given to 399 wells with a production of 418 bbls. of oil per day. It is believed only a few producing wells in the distressed areas are now without a pipe line connection and the majority of these wells are in Greenwood County.

Wildcat locations announced during the week were H. Rosenthal's No. 1 Gray, C NE, Section 11-24-13w, Stafford County. Stanolind Oil & Gas Co.'s No. 1 Martin, NE cor. SE SE, Section 3-16-3w, Saline County.

A new state proration umpire was appointed to succeed T. C. Johnson, resigned. Lloyd B. Pickrell, assistant to T. C. Johnson was selected. In a statement to the operators January 21, T. C. Johnson offered to resign "for the best interests of the oil industry of the State" saying he "no longer wished to hold the office if it in any way disturbed the harmony that has so commendably characterized the attitude of Kansas operators toward proration."

The only area in the State now under proration is the Ritz-Canton Field in McPherson County.

Oil producers are divided as to whether the state government should be given the power to curtail and prorate oil production, or the producers themselves be allowed to limit the flow of production by voluntary agreements. The matter, in the form of a bill is up before the session of the Kansas legislature. Those favoring the bill declare it will, if passed, serve as a measure to conserve petroleum and guarantee equitable distribution of oil and gas production in times of stress.

Wilcox Test in Ford County

Carter Oil Co. and others will drill a Wilcox sand test in Ford County in the western part of Kansas. The test is No. 1 Everett, C NE, Section 22-29-21w, a wildcat on a core drilled block of 18,000 acres. The Mid-Kansas Oil & Gas Co. and Prairie Oil & Gas Co. are also interested in the block. The location is believed to be on a regional high and was made after an extensive core drilling survey. The test is located north of the deep tests drilled in Clark County by the Watchorn Oil & Gas Co. The regional high extends from Barton County, southwest through Pawnee, Edwards, Ford, Kiowa and Clark Counties. An agreement has been made that if a commercial well is found it will be shut in indefinitely.

Activity in McPherson

Activity is increasing in the Ritz-Canton area of McPherson County with about a dozen tests nearing the pay horizons and approximately 40 others drilling or building rigs and 31 others producing oil with a potential of approximately 51,000 bbls. a day. A recent survey of the area shows that a number of leases are about to expire soon, and operators are forced to start tests that otherwise would not be drilled for several months under the present conditions.

Another extension was in prospect in the Ritz-Canton area when Youker and others' No. 1 Sellers, SE cor. SW SW, Section 19-19-1w, found a showing of oil and gas in chat at 2,938-70 feet. It was being drilled to the deeper pay horizon after finding water in the bottom of the chat. Some express the opinion the test is logging higher on structure than Davis and the Aladdin Petroleum Co.'s No. 1 Ritz, SE cor. SW, Section 19-19-1w, a quarter of a mile east, which is now pulling the big pipe with the hole standing full of oil from the deep pay. The operators are erecting tanks planning to deepen and make a production test of the well.

The wildcat test of Helmerich & Payne, on the east edge of the Ritz Pool found water in the deep horizon and is being abandoned. The test was No. 1 Boesker, NW cor., Section 18-20-1w, and the Simpson sand was found at 3,483-85 feet with a hole full of water. The Viola lime was found at 3,435 feet.

The extension well of the Reserve Petroleum Co., No. 1 Ritz, SE cor. SW, Section 31-19-1w, in the Ritz-Canton deep sand pool, swabbed 632 bbls. of oil in 12 hours from the Viola lime at 3,400-06 feet. The potential production of the well is rated at 1,264 bbls. a day. It extends the deep production 1½ miles south of the discovery well in the area.

The semiwildcat test of Lessen & Madison, No. 1 Unruh, NW cor. SE, Section 31-19-1w, increased the gas production to 9,000,000 feet a day from the chat horizon by drilling deeper. The test had been making 6,500,000 feet a day.

Several tests in the Decker gas area are drilling in the chat horizon. McPherson Oil & Gas Co.'s No. 1 Finkle, C NE NW, Section 23-19-2w, McPherson County, found the top of the chat at 2,899 feet and has cemented the casing before drilling deeper. W. C. McBride, Inc.'s No. 2 Griffin, SE cor. SW, Section 14-19-2w, topped the chat at 2,895 feet and was drilling into the formation. Barnsdall Oil Co.'s No. 1 Almore, C NE NE, Section 22-19-2w, the south offset to W. C. McBride's well, has cemented the casing at 2,936 feet on top of the chat. McPherson Oil & Gas Co.'s No. 1 Myers, C SE, Section 14-19-2w, was showing gas at 2,892 feet which is the top of the chat.

Eastborough Pool

The tenth deep sand producer was completed in the Eastborough Pool, Sedgwick County, when Fisher & Lauck's No. 2 Trustee, NW cor. NE, Section 30-27-2, an old chat well drilled deeper, found the Simpson sand at 3,234-51 feet where it filled up with oil. Blankenship Petroleum Corp.'s No. 2 Shaffer, NE cor. NW, Section 30-27-2, is estimated at 450 bbls. a day on the pump.

Muth Brothers Drilling Co.'s No. 1 Beyer, NE cor. NW, Section 21-19-9w, Rice County wildcat, which is believed to have opened a new producing area in the county making it the fourth found during the past year, is now shut in with an estimated potential of 350 bbls. a day. The well is awaiting a market outlet. The oil was found in the Silicious lime at 3,213-44 feet, and swabbed 395 bbls. of oil the first 24 hours.

Swaim Oil Co.'s No. 1 Taylor, C NW, Section 21-25-24w, a wildcat in Ford County, in the western part of the State, found a showing of oil and considerable gas and was cased off from sand at 4,327-30 feet. The gas was estimated at 6,000,000 feet a day. The test was drilling deeper at 4,465 feet.

Failure in Gove County

Atlantic Oil Producing Co. and T. C. Johnson's No. 1 Wright, SE cor. NE, Section 11-12-27w, Gove County, in the western part of the State, is being abandoned at a total depth of 4,861 feet with a hole full of water. The first water was found at 4,625 feet. It is the second test in the county that was found dry in the last few weeks.

The Gypsy Oil Co.'s No. 1 Coleman, C SW NE, Section 25-17-25w, Ness County wildcat, is carrying water while drilling at 4,020 feet. The water was found at 3,887 feet.

In the Gorham Pool, in Russell County, Stearns & Streeter's No. 4 Mermis, SE cor. NW NW, Section 33-13-15w, had the Oswald at 3,048 feet and was drilling deeper to the Gorham sand at 3,175 feet.

The core drilling campaign in progress in Kansas for the last year is slowing down and at the present time only 35 coring operations are underway. The work at the present time is mostly in Gove, Finley, Stafford, Gray, Lane, Scott, Rice and Ellsworth Counties.

Good Well in Harvey

Washoma Petroleum Co.'s No. 1 Zook, C NW SW, Section 36-22-2w, Harvey County, was flowing into the slush pits. It is estimated to have made 650 bbls. of oil in 10 hours from the chat formation. The well extends production in the Palmer Pool, and is the third chat oil well completed in the area. It is a quarter of a mile south of the discovery well which was completed more than a year ago.

The wildcat test in Reno County which was drilling for gas is spraying oil and the operators are moving in tankage to make a production test. The test is Lloyd, Frost, Study & Turper's No. 1 Haury, SE cor. NW Section 1-23-4w. The gas and oil was found in the chat at 3,254-3,363 feet. It is a wildcat located 14 miles east of Hutchinson. The gas showing was found at 3,318 feet and the oil at 3,342 feet. The first well in the area was completed as a 24,000,000-foot gas well by the same operators and the Empire Oil & Refining Co. several months ago and is a quarter of a mile south of the new well. The area is believed to be on the same trend of folding as the Voshell Pool, in McPherson County, being located about 10 miles north on the Abilene arch. The Derby Oil Co. and Reserve Petroleum Co. announced a new location for No. 1 Goering, SE cor. NW NE Section 1-23-4w, a quarter of a mile east of the new well.

The Skelly Oil Co.'s No. 1 Miles, NE cor. Section 30-27-10w, Kingman County wildcat, is still shut in without any pipe line outlet. The test was completed several weeks ago and is estimated to be a 600-bbl. well from the Kansas City lime at 3,341-92 feet, and is located on a block of approximately 6,000 acres that was core drilled by the company before the drilling started.

Derby Oil Co.'s No. 1 Sadie, C SW SW Section 2-19-2w, in the north end of the Decker gas area in McPherson County, was completed for 8,000,000 feet of gas from chat at 2,926-46 feet.

Otstot & Polin's No. 2 Munn, SW cor. Section 6-20-1w, in the Ritz Pool, McPherson County, swabbed 550 bbls. of oil in 12 hours and is being given a potentional of 1,000 bbls. a day from the chat at 2,930-70 feet.

Barber County

Allison & Fitzwilliams' No. 1 Kumberg, SE cor. SW SE, Section 2-30-12w, has been abandoned at 4,825 feet. Barbara Oil Co.'s No. 2 Lytle, NE cor. NW NW NW, Section 13-33-13w, has been completed for 5,000,000 feet of gas in chat 4,473-4,584 feet.

Butler County

Magnolia Petroleum Co.'s No. 6 Stone, NW cor. NE SW, Section 2-25-5, has been deepened to 2,459 feet and completed for 250 bbls. in sand 2,457-59 feet.

Cowley County

Suppes and others' No. 2 Reynolds, SW cor. SE, Section 33-32-7, is a rig.

Ellsworth County

E. W. Marland and others' No. 1 Barecky, C NW, Section 3-16-10w, has been abandoned at 3,392 feet.

Greenwood County

McBride, Inc.'s No. 1 Good, C SE SW, Section 3-28-11, is dry and abandoned at 1,145 feet.

Harvey County

Shell Petroleum Corp. made location for No. 1 Lehman, C NE SE, Section 35-22-2w.

Kingman County

Skelly Oil Co.'s No. 1 Miles, NE cor., Section 30-27-10w, has been completed

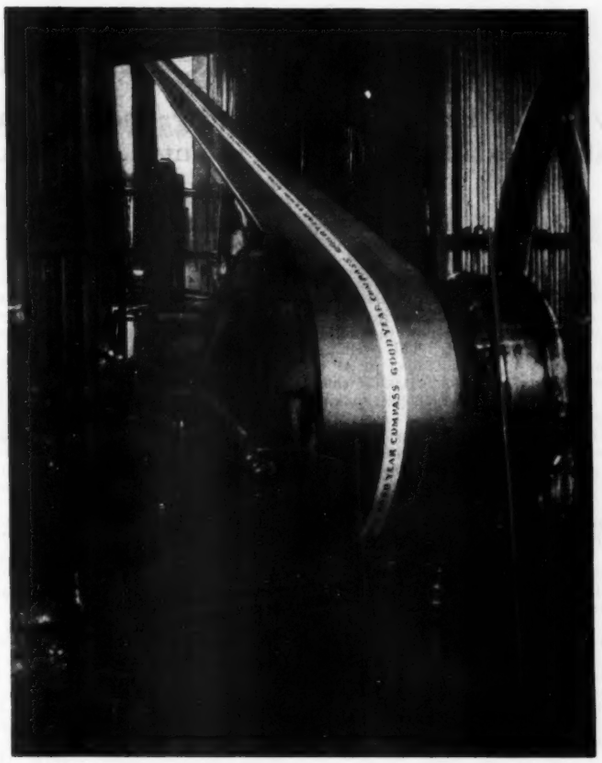
(Continued on Page 107)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARBER COUNTY	
Allison & Fitzwilliams' No. 1 Kumberg, SE SW SE Sec. 2-30-12w	Shut down 4,801 ft.
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boertz, NW SE SE Sec. 13-16-12w	Drlg. 265 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Drlg. 1,875 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.
CLARK COUNTY	
Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	T. D. 6,909 ft.; plugged back to 6,530 ft. to test show gas; S.D.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Shut down 2,390 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,300 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Shut down 1,250 ft.
COWLEY COUNTY	
Fisher et al's No. 1 Hurt, C SW SE SE Sec. 11-34-3	Rig.
Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-32-8	Shut down 1,040 ft.
Tom Fine's No. 1 Boyd, NW NE Sec. 23-32-4	Shut down 2,650 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Drlg. 3,785 ft.
ELLSWORTH COUNTY	
Gilmore Oil et al's No. 1 Sturm, NW SW Sec. 31-17-9w	Rig on ground.
Hershey et al's No. 1 Schultz, C NE Sec. 9-14-8w	Rig.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Underreaming; total depth 320 ft.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Shut down 1,130 ft.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Shut down 1,476 ft.; making 2,000,000 ft. gas.
Aladdin and Carter Oil Co.'s No. 1 Barecky, C NW Sec. 3-16-10w	Silicious 3,345-54 ft.; water.; underreaming 6-in. csg.
FORD COUNTY	
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Drlg. 4,415 ft.
GOVE COUNTY	
Johnson and Atlantic's No. 1 Wright, SE NE Sec. 11-12-27w	Drlg. 4,800 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w	Plugged back to 3,397 ft.; drlg. deeper.

(Continued on Page 82)



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Important Tests in Jackson Gas Field

One May Limit Production to South. Show of Gas in Bienville Parish, Louisiana, Test. Union County, Arkansas, Showing

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 23.—A development of importance to operators in the Jackson, Miss., gas field during the past week was the abandonment as a dry hole of Ganzel and others' No. 1 Stallings, NW cor. NE NE, Section 25-5-1e. at a depth of 3,071 feet. This well is approximately 2 miles south of production and while it does not definitely define the field on the southern end it apparently limits production in this direction. This test had the top of the gas rock at 2,628 feet, whereas in the field proper the gas rock is found at an average depth of 2,475 feet, a difference of 150 feet in the 2 miles. Another test in Mississippi, a wildcat 125 miles north of Jackson in Granada County, has attracted some attention. The well is being drilled by Carter Oil Co. and others, and is in Section 16-22-1e, on the Pace DuBard farm. This well was reported to have a show of gas in the Tuscaloosa formation at a depth of 2,920 feet; however, they did not test and have cored on down to 2,989 feet, the last 3 feet being gray water sand.

In Bienville Parish, Louisiana, Coyle Brothers claim a show of gas in their No. 1 Lawhon, Section 15-16-8, wildcat near the town of Doyline, at a depth of 2,866 feet in sandy shale. They are now shut down awaiting arrival of casing to test at above depth.

In Caddo Parish, Garry Gordon and others have assembled a block of 3,500 acres centering around Section 11-17-15, on the northwest edge of Shreveport, and have made a location in the northeast corner of northwest quarter of above section for a 5,500-foot test. This is in an area where shallow gas production has been obtained but this is the first prospective deep test the area has had. In the same section where Junior Oil & Gas Co. completed a 35,000,000-foot gasser two weeks ago, Pyramid Oil & Gas Co. has made location for a test 3,200 feet west and 75 feet north of the southeast corner of Section 9-18-16, and is now rigging up. Baird Brothers' No. 1 Whittaker, Section 30-20-7w, Claiborne Parish, which has been shut down since April, 1930, has resumed operations and is now drilling at 2,415 feet. This well is about 6 miles south of the Homer Field and 12 miles northwest of the Sugar Creek district and is scheduled to be a deep test.

Concordia Parish

In Concodia Parish, Arkansas-Louisiana Pipe Line Co.'s No. 1 Alexander, Section 47-8-9, had sand showing water at 1,975-83 feet and is now drilling in hard lime at 2,040 feet. This well apparently missed the gas found in A. C. Glassell's test in Section 41-8-10, which blew out at a depth of 1,392 feet making approximately 10,000,000 feet of gas with considerable salt water. United Gas Public Service Co. has begun another test in this area, No. 3 Saunders, Section 42-8-10, now drilling just under the surface casing.

Louisiana Gas & Fuel Co.'s No. 1 Glanton, Section 23-17-6, in the Richland gas field which has missed the deep production obtained in Hope Production Co.'s No. 1 Eubanks, Section 26-17-6, a mile southwest of the Louisiana's test, at 2,900 feet, and is now arranging to test at 3,130 feet. If successful, it will open a new producing horizon in this field. W. C. Feazel's No. 1 Simon, Section 11-16-6, in the heart of the Richland Field, was completed for 38,952,000 feet of gas with a rock pressure of 540 pounds at a depth of 2,400 feet, being the only completion in this field the past week.

The Zwolle district furnished one small pumper in Ohio Oil Co.'s No. 1 Brown, Section 33-8-12, which was completed for 50 bbls. at a depth of 2,525 feet. D. M. Lide and others' No. 2 Ponder, Section 15-7-11, Zwolle district, showed for a 25-bbl. pumper at 2,520 feet, and is being deepened. Ab Jones and others' No. 1 Ferguson, Section 33-8-12, tested dry at 2,400 feet, and had a small show of oil and gas at 2,448 feet.

Union County

Chapman and Wilson Hadley's No. 1, Section 3-18-13, Union County, Arkansas, had a small showing of oil at 3,535-49 feet, but tested dry at 3,551 feet, and cored red beds and sand from 3,551-63 feet and has cemented 6⅝-inch casing at 3,559 feet for another test. This well is about 1 mile northwest of production in the Urbana district of Union County.

J. C. Rogers' No. 1 Lanier, K. E. Wellborn Survey, wildcat in Cass County, Texas, has set 6⅝-inch casing at 1,920 feet to test a show of gas claimed to have been encountered at a depth of 2,275 feet in lime and shale. J. E. Smitherman has commenced drilling on his No. 1 Fell in the J. A. Farrell Survey, and is now around 500 feet. This test is a wildcat and is approximately 5 miles east of Avinger, Tex.

Activity in western Harrison County, Texas, developed two more new locations during the week. W. M. Hobson, trustee, made location for No. 1 P. P. Taylor, 4 miles south of the town of Woodlawn, in the Henry Vardaman Survey, and W. D. Ray Drilling Co. staked location for No. 1 F. C. Hall, northwest of Hallsville, Tex., in the D. D. Davis Survey, in the center of the Hall 32-acre tract.

G. G. Nesbitt of Shreveport has assigned to J. W. McCullough of Oklahoma City 3,100 acres of a block of 6,000 acres and McCullough is to fulfill Nesbitt's drilling obligation. The acreage is in the John Page, Robertson Asher, J. S. Bell, Thomas Price, William D. Mize, H. W. Vardaman, and Henry Vardaman Surveys. Maulding and others, of Houston, have blocked 7,000 acres centering around the James Worsham Survey, 12 miles southwest of Center, Shelby County, Texas, extending into San Augustine County. The consideration is a deep well to be started by June 1. John Vilvig, a building contractor of Dallas, has taken over the P. E. Hussey block in Marion County, and is arranging to skid the derrick to start a new hole on the Trammell farm in the Charles Lockhart Survey. Hussey drilled to 1,884 feet, where it was reported he had a show of oil in a 4-foot core of a lime formation and junked hole.

Eight Completions

There were eight completions, fewer than the district has recorded in several weeks. Two were producers. J. D. Reynolds' No. 1 Pace, a Stephens Townsite well in Section 21-15-19, Ouachita County, Arkansas, pumped 40 bbls. from 2,040 feet. Ohio Oil Co.'s No. 1 Brown in Section 33-8-12, Zwolle, pumped 50 bbls. from 2,535 feet. Harry Morgan's No. 12-B Kendrick, Section 22-19-11, Bellevue, was abandoned at 2,050 feet, having had no sand all the way down. C. D. Neff's No. 1 Dowling, 6 miles southwest of Holly production, was dry at 3,180 feet. He had the base of the chalk at 2,040 feet, went into the lime at 2,059 feet, and advises that he may possibly deepen it.

Four or five miles west of production in the Ouachita Parish part of the Monroe gas field, Ouachita Natural Gas & Oil Co. decided to make a well of No. 1 Smith, in the NE NE, Section 36-20-2e, Union Parish. It gauged 176,000 feet of gas at 875 pounds rock pressure, total depth 2,258 feet, and was deepened to 2,308 feet presumably to Monroe's second gas sand, without improving. Besides the Ganzel wildcat in the Jackson district of Mississippi, a failure, the district had one average gasser, Feazel Oil & Gas Co.'s No. 1 Garrett, NW NW, Section 2-5-1e, Hinds County, the well being in proven territory, making 20,000,000 feet of gas, with some water, at a total depth of 2,443 feet, with top of the chalk at 2,438 feet.

Completion of the Mississippi Industrial Gas Co.'s 6-inch welded line from Jackson to McComb, and Hammond, La., and service to the towns it reaches will be of great importance as indicating to what extent the Jackson Field and its individual wells may be depended on as a source of fuel. Up to date, the only pull on the Jackson Field has been for Jackson consumption.

Daily Average Runs

An increase of 455 bbls. in daily average runs from Zwolle together with the balancing of increases and decreases in other fields, added a net increase for the division of 305 bbls. Total runs averaged 94,720 bbls.; North Louisiana contributed 44,880 bbls. of the total and Arkansas 49,840 bbls. Daily average runs from the several pools were:

NORTH LOUISIANA

Caddo, light	8,215
Caddo, heavy	2,830
Homer	3,370
Haynesville	5,640
DeSoto-Red River	2,765
Elm Grove	510
Bellevue	580
Cotton Valley	1,880
Urania	4,855
Pleasant Hill	380
Sarepta-Carterville	1,680
Zwolle	11,450
Holly	725
Total North Louisiana	44,880
Last week	44,545
Increase	335

ARKANSAS

El Dorado	3,800
Smackover, light	4,425
Smackover, heavy	33,480
Stephens	835
Nevada County	990
Lisbon	780
Champagnolle	4,435
Bradley	60
Mount Holly	60
Urbana	975
Total Arkansas	49,840
Last week	49,870
Decrease	30
Both states	94,720
Last week	94,415
Increase	305

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

BOSSIER PARISH—CARTERVILLE

Company, farm and location— Remarks—

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11.....Hole full oil; W.O.S.R.; 15 ft. broken sand; T.D. 3,217 ft.

BOSSIER PARISH—SLIGO

United Prod. Co.'s No. 2 Schnitt, 660 ft. E, 1,980 ft. S, NW cor. NE. Sec. 14-17-12.....Cmtd. 6⅝-in. 2,455 ft.

United Gas Public Service Corp.'s No. 1 Smith, 1,980 ft. S, 342 ft. W, NE cor., Sec. 14-17-12.....Derrick.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16.....Location.

Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,310 ft. S, 970 ft. E, NW cor., Sec. 17-16-16.....Location.

CADDO PARISH—MOORINGSPORT

Falcon Oil Co.'s No. 5 Nunnally, 2,379 ft. N, 3,849 ft. E, SW cor., Sec. 29-20-15.....Drlg. chalk 1,500 ft.

CADDO PARISH—OIL CITY

Trio Corp.'s No. 1 Levee Board, 212 ft. S, 500 ft. E, NW cor., Sec. 17-20-15.....Drlg. chalk 1,400 ft.

CADDO PARISH—PINE ISLAND

Haynes Bros.' No. 2 Spell, 956 ft. W, 200 ft. N, SE cor. SE, Sec. 15-21-15.....Fishing bailer; T.D. 3,962 ft.

CLAIBORNE PARISH—HOMER

La. Oil Ref. Corp.'s No. 1 Langston, 660 ft. S, 528 ft. E, NW cor. SW SW, Sec. 19-21-7.....Drlg. hard shale 4,035 ft.

DE SOTO PARISH—HOLLY

Standard Oil Co.'s No. 6-A Farmer, 200 ft. N, 200 ft. E, SW cor. NE NW, Sec. 5-13-13.....Drlg. gummy shale and chalk 2,032 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feasel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4.....Began drlg. Jan. 21; cmtd. 12¼-in. 162 ft; 8-in. 1,100 ft.

(Continued on Page 78)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location— Remarks—

Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8.....S.D. for csg.; T.D. 2,866 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14.....S.D. 2,200 ft.

Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13.....Set 6⅝-in. 1,931 ft; dry; arranging to deepen; T.D. 1,600 ft.

R. O. Roy's No. 1 W. H. Hodges, C NW NW, Sec. 19-16-10.....Began drlg. Feb. 15; cmtd. 12¼-in. 140 ft.

CADDO PARISH

R. E. Davidson et al's No. 1 Weiller, Sec. 33-17-13.....Drlg. hard chalk 1,530 ft.

Garry M. Gordon's No. 1 Hatcher, 560 ft. E, 600 ft. S, NE cor. NW, Sec. 11-17-15.....Location.

R. H. Libby's No. 1 Foster (was Gooch et al's), Sec. 29-15-16.....Drlg. 2,700 ft.

Pyramid O. & G. Co.'s No. 1 Wheeler, 3,200 ft. W. 75 ft. N, SE cor., Sec. 9-18-16.....Rig up.

United Prod. Co.'s No. 1 Emmons, 1,337 ft. E, 660 ft. N, SW cor., Sec. 27-23-16.....Began drlg. Feb. 16; cmtd. 12¼-in. 363 ft.

United Gas Public Service Corp.'s No. 1 Fortner, 330 ft. S, 330 ft. E, NW cor., Sec. 5-22-16.....(O.W.D.D.); old T.D. 5,005 ft.; rig up.

CALDWELL PARISH

Hudson et al's No. 1 Burton, Sec. 35-12-2e.....S.D. 2,600 ft.

CATAHOULA PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4.....Derrick.

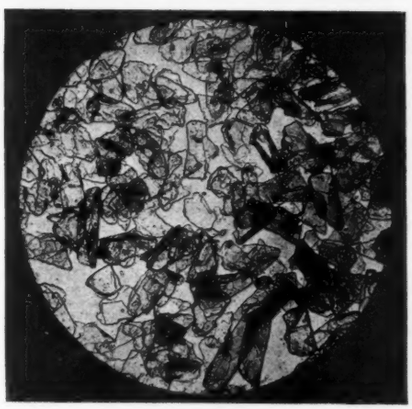
National Drlg. Co.'s No. 1 Marsh McMillen, 70 ft. N, 100 ft. W, C, Sec. 26-9-6.....Tested S.W; W.O. 3,086 ft.

(Continued on Page 78)

Made to rigid specifications and can be duplicated any time

Barrett Specification

PIPE LINE ENAMEL



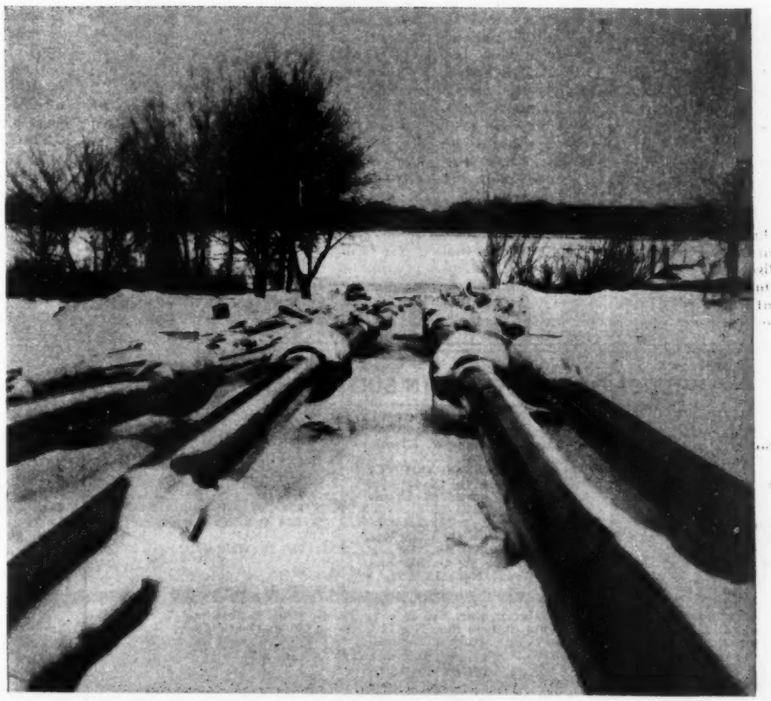
This photo-micrograph shows how flakes of the internal reinforcement used by Barrett in enamels tend to interlock. They laminate with the waterproofing agent and give Barrett Pipe Line Enamel unusual tensile strength and toughness.

BARRETT Specification Pipe Line Enamel may be ordered to meet any pipe line requirement — and your order can be precisely duplicated at any time, whether months or years later.

This is possible because The Barrett Company, with its vast resources and facilities, controls every step in the manufacturing process. Completely equipped laboratories, manned by chemists who have long specialized in the work, test every batch of material at each stage of manufacture—from the selection of the crude to the finished product. Data on every shipment is filed and kept. Every drum is identified.

The base of Barrett Pipe Line Enamel is high grade, straight-run, coal-tar pitch which, chemists agree, has no superior as a waterproofing agent. This moisture-proof base is strengthened and toughened by the use of a flake-type *mineral reinforcement*. It is a *reinforcement* that is non-porous, non-absorbent, chemically inert and resistant to stray electrical currents. Moreover, its use allows for more bitumen in the finished ton than does ordinary filler—hence the greater efficiency of Barrett Specification Pipe Line Enamel.

In addition to quality and uniformity of product The Barrett Company provides Barrett Service and Field Inspection. Send for Bulletins giving complete information on Barrett Specification Protection.



Barrett Enamel is highly resistant to sudden and extreme changes in temperature and affords complete protection regardless of soil or climatic conditions.

The Barrett Company

40 Rector St. New York

Revival of Work in Southwest Texas

Renewed Geophysical Research in Prospect. Good Showing in Northwestern Duval County. Goliad County Well Rated 500 Bbls.

By B. D. Stevenson
Staff Correspondent Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 23—There is a revival of activity in geophysical research work in Southwest Texas. Concerns at San Antonio operating these devices after weeks of idleness are getting some contracts and, also, more inquiries. Also the number of tests drilling has increased quite a little and number of those shut down has decreased in proportion. There were a few more derricks put up last week also than for some weeks past. Each in itself a minor proposition, but taken together, indicate a slight increase in activity generally over Southwest Texas.

In addition to The Texas Company's No. 2 McFadden in southern Victoria County blowing in and running wild from a new shallow sand, now capped and under control, the interesting and more important developments in Southwest Texas the past week included a good showing and indications of a second producer in the S.R.C. Pool in northwestern Duval County, where the discovery well was followed by two dry holes; every indication that the second test drilled in the Slick Pool in Goliad County will be a producer and a showing of gas in Evans & Sprinkle's No. 1 J. M. Auld in Real County at around 2,100 feet. No. 1 J. M. Auld is about 5 miles northwest of No. 1 Jeff Love, the discovery well in Kerr County, and right on the line on which, according to popular opinion, the structure lies. No. 1 Jeff Love had a showing at 2,552 feet which was pretty good and its total depth is now 3,391 feet, from which depth it is now producing. No. 1 J. M. Auld is expected to be higher than the other and hence the showing of gas arouses considerable interest.

In the S.R.C. Pool in northwestern Duval County where the S.R.C. Oil Co. and the Vacuum Oil Co. brought in the discovery well a few months ago, No. 3 Duval County Ranch Land Co. got a saturated core at 1,730 feet. No. 1 discovery well is producing at 1,723 feet. No. 2, located off to the southwest a few locations, is a dry hole and The Texas Company drilled a test a few locations northeast which is dry also. No. 3 of the S.R.C. Oil Co. and Vacuum Oil Co. is northeast of No. 1 and west of The Texas Company's test, and it seems reasonably certain to make a well. Casing has been set and it should be ready to complete by the middle of this week.

Second Slick Well

In Goliad County near the DeWitt County line T. B. Slick estate has set casing in No. 1 Allen, which is the first test to be drilled since the completion of the discovery well. It got the pay at 4,198 to 4,212 feet, which is identically the same depth as in the discovery well, but, taking elevations into account, it is said to be about 9 feet higher than the discovery well. On drill stem test it showed up about as the discovery well and it was rated at least for 500 bbls. daily. The new well is 1,500 feet east of the discovery well.

Laredo District

Taking in turn the spots over Southwest Texas that are of special importance, Al Buchanan is drilling in his No. 2 Welder-Wood in Survey 215 in the extreme northern part of Duval County and in the center of the county east and west. It is several miles northeast of the Schoolfield-O'Byrne Pool and total depth is 1,519 feet with casing set at 1,510 feet. No. 1 made a little oil but not enough for a well and No. 2 is supposed to be better located on the structure. The nearest production is the Schoolfield-O'Byrne Pool.

South of the Schoolfield-O'Byrne Pool the Duval Oil Corp. is starting No. 2 Bishop Land & Cattle Co. The company takes over the interests formerly reported as Frasher & Schoolfield. The well reported last week as Frasher & Schoolfield's No. 2 Bishop Duval Land Co. should have been carried as Breeding and others' No. 1 Bishop Duval Land Co. It is 330 feet from the northwest corner of the south half of Survey 135 and is approximately 1,500 feet southwest of the discovery well. The discovery well, it will be remembered, is an oil well. Breeding's No. 1 came in a 20,000,000-foot gas well. Magnolia Petroleum Co., 2,000 feet northwest of the discovery well and in the northeast corner of Survey 136, also brought in a gas well. Now the owners of the discovery well have moved to the center of Survey 135 and about 1,500 feet southeast of the discovery well for its next test. It is assumed that the gas lies along the west side of the field just as it does in the Schoolfield-O'Byrne Pool, 1½ miles north.

J. W. O'Byrne is rigging up but has not started yet in his No. 1 Weil in Survey 568 several miles southwest.

In the Kohler Field in the west central part of Duval County, Humble Oil & Refining Co.'s No. 50 Kohler, in Survey 164, is down 4,457 feet and nothing seems to have happened since it tested salt water, gas and oil at 1,860-70 feet, which is about the depth of gas and oil production in the field.

In the northeast corner of Zapata County, the interest as usual is around the Escobas Pool. Claypool & Nickson's No. 2 Garza in Block 11 of the Zorro Subdivision of the Lomitas grant is down with sand at 1,382-88 feet and ready to bail. No. 2 in the same block reported a week ago was a considerable extension south of the pool.

Corpus Christi Area

In Nueces County a little east of the Agua Dulce Field where Houston Oil Co. completed one gas well making a lot of oil at 4,913 feet, the company has the second test down to 4,360 feet and it will be another week or so before the verdict is ready. The test is the No. 1 Ollie Purl.

Grimm & Yakey's No. 1 Bauer, north of Robstown in Nueces County, drilled to 4,515 feet, is being deepened by Neuhaus and others who are now drilling at 4,520 feet.

In southeastern Live Oak County, Houston Oil Co. has No. 3 Brown Land & Cattle Co. at 5,280 feet, which is the depth where the No. 1-A Boothe came in a producer opening a new sand. No. 3 Brown Land & Cattle Co. is still drilling but should report something soon.

Darst Creek

Sun Oil Co.'s No. 1 Dowdy, which will extend the Darst Creek Field a quarter mile south if it comes in a producer, is building the derrick. It and the Luling Oil & Gas Co.'s No. 1 Mrs. Fannie Nixon, east of the field, are of particular interest and the latter is ready to spud in. In the field the Magnolia Petroleum Co.'s No. 1 Roemel, the biggest well ever completed in Southwest Texas and which came in for 42,000 bbls. a day at 2,321 feet, is being deepened but having trouble doing it. The well produced from a crevice and in trying to deepen the drill stem twists off and none of it can ever be recovered. It is lost in the crevice.

SOUTHWEST TEXAS PRODUCTION

Agua Dulce	12
Bexar County	360
Branyon	24
Bruner	16,240
Buchanan	104
Chapman	4,706
Dale	278
Darst Creek	30,588
Goliad	41
Kingsville	116
Larremore	20
Luling	9,211
Lytton Springs	582
Manford	150
McMullen County	20
Medina County	22
Mirando district*	13,697
Normanna	28
North Pettus	281
Pettus	7,142
Saxet	198
Somerset	1,862
S.R.C.-Vacuum	152
White Point	43
Yoast	180
Total	85,547
Week ended February 14	89,379
Decrease	3,832

*Includes Charco-Redondo, Jennings and Mirando Valley of Zapata County; Albercas, Aviator, Caroline-Texas, Mid-O-Juelos, Schott and Wolcott, Webb County; Alworth, Henne-Winch-Fariss and Randado of Jim Hogg County; Cole, Driscoll, Kohler, Schoolfield-O'Byrne of Duval County.

Balcones Fault Zone

Harley & Whittington's No. 1 Heidenrich in Hays County near Kyle and close to the Balcones fault ran into something that looks like schist at 2,750 feet. On the advice of geologists they are drilling a little deeper to make sure. If it is schist, the test will be abandoned.

Turner, Whorton and Charlie Ander-

(Continued on Page 104)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Cullen and Boren's No. 1 Medina Irrigation, W. Klemke Sur. No. 439	T. D. 2,267 ft.; shut down.

BLANCO COUNTY

H. L. Lewis' No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City	T. D. 500 ft.; shut down.
Hardy-Sitton's No. 1 McMillan	T. D. 570 ft.; shut down.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 950 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft .to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 562 ft.; shut down.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 32	T. D. 1,025 ft.; fishing.
Page et al's No. 1 Cox, Rutersville College Sur. No. 18	Spudded and shut down.
G. Rosenfield's No. 1 Hohenberger, 300 ft. to W line, 1,250 ft. to N line, Sur. No. 94	T D. 713 ft.; shut down.

BASTROP COUNTY

Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,325 varas from S line of M. Andrews Sur., 13 miles W from Smithville	T. D. 375 ft.; standing.
Turner-Whorton and Anderson's No. 1 Harris, Joshua Gray Sur.	Ready to spud.

BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur.	Derrick.
J. W. Riley et al's No. 1 J. W. Mosely, Maxiano Moreno Sur.	T. D. 1,030 ft.; shut down; hole full water.

BROOKS COUNTY

Ed East's No. 3 B. Garcia, 150 ft. from N and W lines of Blk. 5, Share A-1, Las Mastena y Gonzalene grant	T. D. 1,002 ft.; standing.

BEE COUNTY

Hurlbut et al's No. 1 Mrs. D. Chestnut	T. D. 5,010 ft.; shut down.
Catlell and O'Neill's No. 1 Miller, Ronald Hotchkiss Sur.	Location.
E. S. Price's No. 1 Weiss, 200 ft. each way out of NW cor. of B.&B. Sur.	T. D. 4,423 ft.; preparing to swab.

(Continued on Page 97)

SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Morgan Bros.' No. 3 Masterson, 300 ft. S of No. 2 Masterson, Miguel Gortaris Sur.	T. D. 550 ft.; set csg.
Bolling & Michael's No. 1 Adams, Miguel Gortaris Sur.	T. D. 700 ft.; (W.O.).
F. H. Eckert's No. 1 Dobrowolski, 400 ft. from W line, 150 ft. from S line of lease, Sur. No. 52	Location.
A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur.	Location.
A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur.	Location.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, A. Floyd Sur.	T. D. 50 ft.; spudded.

EDDINGTON POOL—FALLS COUNTY

Eddington et al's No. 2 Llewellyn, George Allen Sur.	T. D. 1,010 ft.; shut down for repairs.

DARST CREEK FIELD—GUADALUPE COUNTY

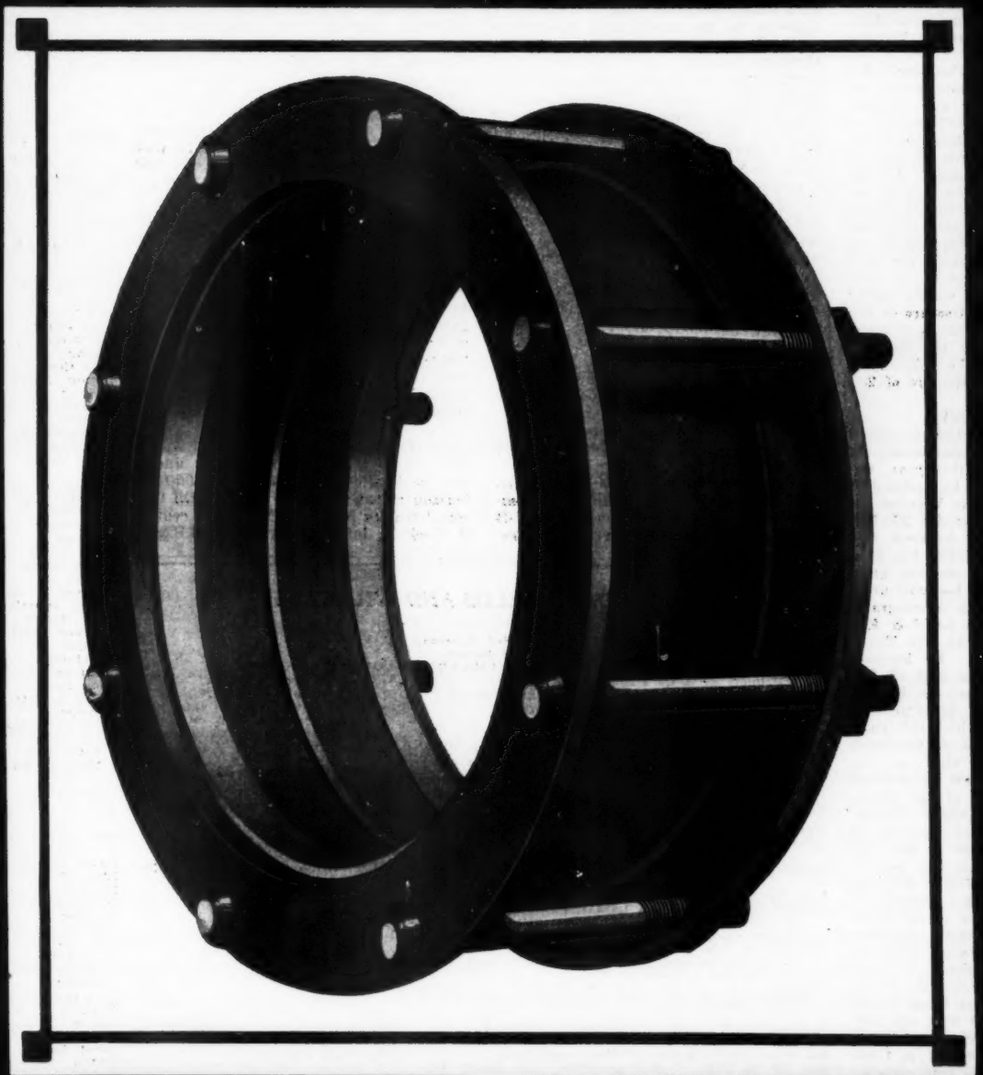
Humble Oil's No. 22-A Denman	T. D. 2,570 ft.; drlg.
Magnolia Petroleum Co.'s No. 1 M. E. Roamel, J. Robinson Sur.	T. D. 2,405 ft.; drlg.
Magnolia Petroleum Co.'s No. 7 Klein	T. D. 2,300 ft.; drlg.
Sun Oil Co.'s No. 1 Dowdy, J. C. Darst Sur. No. 9	Derrick.
Sun Oil Co.'s No. 13 Knoblock	T. D. 2,595 ft.; comp. 2,000 bbls.

CHAPMAN POOL—WILLIAMSON COUNTY

W. D. Anderson's No. 6-A T. F. Simmons	Rig up and shut down.
W. D. Anderson's No. 8 M. V. Lawrence	Location.
Bartlett & Wilson's No. 2 R. E. Stewart	T. D. 790 ft.; standing.
Bartlett & Wilson's No. 1 R. E. Stewart	T. D. 741 ft.; standing.
Chapman et al's No. 2-E Sides	Location.
Collins et al's No. 6 Lawrence	T. D. 1,000 ft.; drlg.
J. L. Collins & Co.'s No. 7 M. V. Lawrence, 150 ft. from E line, 215 ft. from S line of 27-ac. tract in the S. Miller Sur.	Setting csg.; shut down for water.
E. E. Ertell's No. 7 J. C. Abbott	T. D. 100 ft.; standing.
J. L. Collins & Co.'s No. 5 M. V. Lawrence, 150 ft. from W line, 515 ft. from S line of 27-ac. tract, S. Miller Sur.	T. D. 1,402 ft.; standing.
Marts and Ertell's No. 1 Abbott, Simon Miller Sur.	T. D. 70 ft.; fishing.
G. Stratton's No. 8 J. C. Abbott, 450 ft. from E line, 150 ft. from S line of 32-ac. tract, S. Miller Sur.	T. D. 1,730 ft.; set csg.
Stratton et al's No. 9 Abbott	Rigged up.

(Continued on Page 98)

DAYTON COUPLINGS



THE
NATIONAL SUPPLY
COMPANIES

Two New Gulf Coast Productive Areas

One in Victoria County, Texas, and Other on Leesville Geophysical Prospect, La Fourche Parish, Louisiana

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 23.—Two new productive areas, one an oil field and the other gas, were brought in on the Gulf Coast the past week. Both were opened by The Texas Company, the former being on the Leesville (Bayou LaFourche) geophysical salt dome prospect in LaFourche Parish, Louisiana, and the other in the Bloomington-Mariana district of southwestern Victoria County, Texas.

At Leesville, The Texas Company's No. 2 Louisiana Land, 4,396 feet south and 705 feet east of the NW cor., Section 26-21s-22e, came in on the morning of February 18 flowing an estimated 400 to 500 bbls. daily from a sand at a total depth of 3,028 feet. A total of 42 feet 10 inches of 4¾-inch screen was set on a back pressure valve placing it 1 foot 8 inches off bottom, and then 4¾-inch line was set to top. The 9⅝-inch casing string was set at 3,000 feet. The well started flowing at the rate of 20 bbls. of fluid, 20 per cent wash water, hourly on a half-inch choke with pressure of 490 pounds. It then was placed on a three-quarter-inch choke and in the first 24 hours from that flowed 317 bbls., .2 of 1 per cent water, with a pressure of 260 pounds.

Leesville Prospect

Leesville is the second new geophysical prospect opened for production in coastal Louisiana so far this year, the other being at Iowa on the Calcasieu-Jeff Davis Parish line, where the Vacuum Oil Co. late in January completed a 250-bbl. producer from a sand at 5,000-08 feet in its No. 1 Waite. The latter has been shut in for storage and is showing pressure of 1,350 pounds. The Leesville prospect was discovered by the seismograph in 1928 by the Louisiana Land & Exploration Co. and turned to The Texas Company for development. Its location is in the extreme southern part of LaFourche Parish in the marshes bordering the Gulf of Mexico. It is one of nine domes or prospects which this company is developing in the southeastern part of the State on the Gulf, not including two domes and part of a third in the southwestern part of the State, or Port Barre in St. Landry Parish. LaFourche Parish, in which Leesville is the first production, adjoins to the east Terrebonne Parish, where in this coastal marshes The Texas Company is developing seven domes in a group. Leesville is approximately 18 miles east of the Lake Barre Dome, the most prolific producer of the group, where six good wells in succession have been completed.

The discovery well at Leesville is the second test drilled, the first being No. 1 Louisiana Land, 1,458 feet west and 786 feet south of the NE cor., Section 27-21s-22e, which was abandoned at a total depth of 5,448 feet. This test encountered favorable oil showings but had numerous difficulties with a bad hole, which necessitated several fishing and sidetracking jobs. No. 2 is approximately a mile to the southeast of No. 1 and is believed to be on top of the dome.

Victoria County Well

In the Bloomington-Mariana district of Victoria County, The Texas Company's No. 2 McFaddin, 9,150 feet south and 200 feet east at right angles out of the NW cor. of the C. M. B. Hoyd Survey, late in the week had not been entirely completed. The well early in the week blew out from a sand believed between 1,950 and 2,000 feet. At the time it was drilling in gumbo at 2,025 feet. The well is making an estimated 30,000,000 feet of gas and 4,000 bbls. of fresh water through the drill stem. Late in the week christmas tree connections were being made on the drill stem to shut in the well. The only casing in the hole is a string set around 1,225 feet.

The Victoria County development is located between the towns of Bloomington and Mariana, where the acreage is split in large blocks among The Texas Company, Lion Oil & Refining Co. and United Production Corp., Houston Oil Co., Humble Oil & Refining Co., and with Shell Petroleum Corp. and the Petty interests to the north, and Moody-Seagraves-Morgan interests to the east in Calhoun County.

The Victoria County gas well is approximately 4 miles to the west of two gas wells completed by the Lion Oil & Refining Co. in the M. Traviesa Survey. It is indicated, however, that two entirely separate fields exist, or a large field with a spotted productive condition similar to the Pettus district of Bee County. The Texas Company's new well is at a total depth of only 2,025 feet, while the Lion wells, which since have been taken over by the United Production Corp. for the gas, are from a 3,700-foot horizon. The two Lion wells are 600 feet apart. The discovery well, No. 1 McFaddin, was completed last June for 36,000,000 feet of dry gas, 1,750 pounds pressure, at 3,749 feet. The second, No. 2 McFaddin, was drilled to a total depth of 6,454 feet, passing up the gas sand in an effort to go deeper for oil. Failing to find oil it was plugged back to the gas sand at 3,705-36 feet and completed by the United Production Corp. for 35,000,000 feet of gas, 1,275 pounds pressure. The latter company has just made location for No. 1-B McFaddin, in the same survey (M. Traviesa), 3,700 feet east and 560 feet north from the NE cor. of the C. O. Edwards Survey, placing it a little more than 5,600 feet to the east of the two gas wells on the "A" lease.

Two Separate Structures

That two separate structures exist is indicated in the fact that The Texas Company's No. 1 McFaddin, located in the H. Bonny Survey and approximately midway between, although slightly to the south of the No. 2 McFaddin and the Lion wells, was drilled to a total depth of 6,684 feet and was abandoned last December as dry. It encountered a sand showing gas at 3,707-20 feet but tested salt water in this. The only other test drilled was Houston Oil Co.'s No. 1 McFaddin on a block located to the south of the Lion and United block and east of The Texas Company block. It was abandoned as dry at 4,635 feet, showing salt water in the sand at 3,768-79 feet.

This area is some 30 to 35 miles up the coast to the east of the Refugio Field and virtually in a line with Refugio and the Saxet and White Point Fields farther down the coast. Refugio and those fields originally came in as gas fields of high pressure and all since have developed oil production, although Refugio is the only one of any extent so far. Conditions in the new Victoria County area frequently have been compared to Refugio, where a gas field of wide area was proved up and from approximately the same level.

Pierce Junction

On the northwest flank of Pierce Junction, where a new active play is under way in development of a 4,100-4,300-foot horizon recently opened, Navarro Oil Co. completed its No. 2 H. M. Perry, center of Block 46, Jones Subdivision, B.B.B.&C. Survey No. 1,028, flowing an estimated 1,000 bbls. of pipe line oil daily in sand at 4,308-41 feet. In Lot 28, some distance to the south, Tilton and associates' No. 1 Gulf-Jones fee created considerable interest when it started flowing 125 bbls. net oil an hour. This well, one of the best in the area, was completed October 5 and has been flowing steadily since until the past week when it stopped. Operators in preparing to work over the well opened it and it started flowing again. Producing at the rate of 125 bbls. hourly at first it then was placed on a twenty-five-sixty-fourths-inch choke and has been flowing 25 bbls. hourly with pressure of 150 pounds. At the close of the week nine rigs were running in this particular area of the northwest flank; this, however, not including scattered rigs on other flanks of the dome.

Daily Average Production

Daily average production of coastal fields for the week ended February 21 was:

GULF COAST PRODUCTION
Texas

Allen	72
Barbers Hill	21,777
Batson	1,025
Big Creek	2,830
Blue Ridge	1,296
Brenham	142
Boling	715
Clay Creek	2,147
Damon Mound	613
DeWalt	12,030
Esperson	2,252
Fannett	671
Goose Creek	4,243
Hankamer	2,537
High Island	448
Hull	6,252
Humble	9,700
Lost Lake	348
Markham	192
Moss Bluff	829
Mykawa	35
Nash	218
North Dayton	693
Orange	2,068
Orchard	2,206
Pierce Junction	5,786
Port Neches	1,523
Raccoon Bend	5,886
Refugio	33,866
Rockland	4
Saratoga	1,040
Sour Lake	2,093
South Liberty	2,462
Spindletop	12,966
West Columbia	4,069
Total Texas Coast	151,034
Week ended February 14	151,392
Decrease	358

South Louisiana

Anse La Butte	50
Bayou Blue	150
Bayou Bouillon	121
Black Bayou	988
Edgerly	836
Jennings	648
Hackberry	3,289
Iowa	Shut in
Lake Barre	3,411
Lake Pelto	109
Leesville	165
Lockport	4,948
Port Barre	1,680
Sorrento	50
Starks	754
Sulphur	1,950
Sweet Lake	1,142
Vinton	5,095
Welsh	77
White Castle	951
Total Louisiana Coast	26,414
Week ending February 14	26,076
Increase	338
Total Gulf Coast	177,448
Week ended February 14	177,468
Decrease	20

Mykawa Completion

Humble Oil & Refining Co. has completed its No. 1 Gehring, 100 feet from the south line and 125 feet from the east line of the tract, W. J. Lovett Survey, at Mykawa, Harris County. This well swabbed 154 bbls. of oil in the first day with 51 feet of 4½-inch screen set at 4,904 feet. It since has been good

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GULF COAST FIELDS AND WILDCATS

Week Ended February 21
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 1-B Barber, north	Drlg. hard sand 4,694 ft.
Mills Bennett Prod. Co.'s No. 5 Higgins, southeast	Drlg. sandy shale 4,459 ft.
Mills Bennett Prod. Co.'s No. 1 Gulf-Smith	Oil sand 5,515-58 ft.; came in flowing 500 bbls. daily on ½-in. choke; went dead; swabbing.
Mills Bennett Prod. Co.'s No. 2 Gulf-Fisher, Wm. Bloodgood Sur., 400 ft. from S line and 50 ft. from W line lease (workover)	Pulling screen to deepen 4,769 ft.
Humphreys Corp.'s No. 2-B Barber, north	Sandy lime 3,491 ft.; blew out from gas pocket; drill stem stuck.
Humphreys Corp.'s No. 1 Louise Fitzgerald, north	Total depth 5,379 ft. in salt.; drlg. sidetracked hole in sand 3,737 ft.
Humphreys Corp.'s No. 2 Wilburn, southeast	Drlg. salt 1,859 ft.; top salt 1,715 ft.
Humphreys Corp.'s No. 10-A Kirby (workover)	Drlg. sticky shale 6,914 ft.
Humphreys Corp.'s No. 1 Lula Barber, west flank, W. D Smith Sur., 50 ft. from N line and 50 ft. from E line of tract	Drlg. gumbo 1,263 ft.
Humphreys Corp.'s No. 1 E. H. Winfree, west flank, W. D. Smith Sur., 50 ft. from S line and 75 ft. from W line of tract	Drlg. shale 1,694 ft.
Humphreys Corp.'s No. 2 E. H. Winfree, west flank, W. D. Smith Sur., 50 ft. from W line and 478 ft. S line 10-acre tract	Rig.
McAlbert Oil Co.'s No. 4 Woodward (workover)	Drlg. sand showing oil 5,264 ft.
McAlbert Oil Co.'s No. 8 Woodward, east flank	Rig standing.
Rio Bravo Oil Co.'s No. 2 Fisher, west flank	Drlg. rock 2,374 ft.
Sun Oil Co.'s No. 4 McKinney fee, east flank, Wm. Hodge Sur., 100 ft. W No. 3 and 40 ft. N line tract	Set screen 5,511 ft.; swabbed salt water; abandoned.
Sun Oil Co.'s No. 8 Chambers, south	Drlg. salt 2,237 ft.
Sun Oil Co.'s No. 1 Smith, west	Drlg. rock 4,635 ft.
Sun Oil Co.'s No. 14 Wilburn fee, east	Rock 1,308 ft.; drill pipe stuck.
The Texas Company's No. 1 Williams, southwest	Coring 6,774 ft.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease	Drlg. 300 ft.
The Texas Company's No. 3 Winfree, west flank, W. D. Smith Sur., 478 ft. N and 50 ft. W at right angles out of SE cor. of lease	Drlg. gumbo and boulders 3,258 ft.
Yount Lee Oil Co.'s No. 10 Woodward, southeast	Drlg. shale and lime 4,042 ft.
Yount Lee Oil Co.'s No. 16 Chambers, Wm. Bloodgood Sur., 50 ft. from W line of tract in line with Nos. 15 and 12 (workover)	Pulling screen to deepen 4,733 ft.
Yount Lee Oil Co.'s No. 18 Chambers, south flank, Wm. Bloodgood Sur., 100 ft. N Sun Oil Co.'s No. 7	Drlg. salt 3,235 ft.; top salt 1,758 ft.
Yount Lee Oil Co.'s No. 19 Chambers, south flank, Wm. Bloodgood Sur., 10 ft. N Sun Oil Co.'s No. 8	Drlg. salt 2,185 ft.; top salt 1,807 ft.
Yount Lee Oil Co.'s No. 6 Phillips, east	Rig standing.
Yount Lee Oil Co.'s No. 1 Winfree, west	Drlg. sand and lime 4,500 ft.

(Continued on Page 98)

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Eastern Colorado Area More Promising

Showing in Well Near Denver, 30 Miles West of Greasewood Dome Discovery, Stimulates Interest in Wildcat Play

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Feb. 23.—Colorado reported another oil discovery in the plains area out from the mountains in the MacDeb Drilling Co.'s No. 1 Fitzsimmons, near Denver, which has 400 feet of high gravity oil in the hole. Several old wells in this district which have been shut down are preparing to resume. A test in Grand County, in Middle Park, has commenced spudding.

The executive committee in charge of proration in the Hobbs Pool set the maximum outlet for the last half of February at 31,328 bbls. daily from 125 units of 40 acres each. Potential production on February 16 was placed at 1,122,295 bbls. Drilling in the Hobbs Pool is now down to two wells, one of which is waiting for proration test. The Western Drilling Co.'s No. 1 State in the Caprock area swabbed 102 bbls. in three hours and failed to lower the oil below 3,000 feet. One new location for this area was announced. The Fulton Petroleum Co. is starting a well in Mora County for gas to make dry ice. One well was abandoned in Curry County.

Montana reported one well abandoned in Toole County, no completions and two wells spudding.

Two small shows in the Midway Dome test well in Wyoming failed to materially increase production. No completions or new operations were reported.

COLORADO

Denver oil men experienced a wave of interest this week when officials of the MacDeb Drilling Co. announced that its No. 1 Fitzsimmons, C S half NE, Section 7-4s-66, in Arapahoe County, 10 miles east of the center of Denver and 1 mile south of the United States Army's Fitzsimmons General Hospital, had oil in the hole. The directors were invited to inspect the showing early Monday morning. With that one exception, nobody was admitted to the well for several days and the importance of the showing was entirely a matter of speculation. One of the party admitted to the well was A. J. Simonson, owner of the ranch upon which it is located. Mr. Simonson stated the bailer was run four times in their presence and that each time it came out filled about two-thirds with oil and one-third with water and that the gas vapor rose about 1 foot above the top of the casing.

The writer was taken to the well by Charles A. Caruson, secretary and treasurer of the company, and was given full opportunity to make any examinations desired. William H. Ingersoll, head driller, opened the valve on the 6¼-inch casing. No gas vapor appeared. The bailer then was run and came up about two-thirds full of oil and one-third water. When emptied into a barrel, the fluid foamed for a moment, then bubbled and settled down. The gas vapor now was appearing for about 1 foot above the casinghead. The temperature of the oil, taken about 10 minutes later, was 110 degrees. The oil was light green in color with a brownish cast. The bailer then was run five or six times with practically the same results except that the gas vapor rose 4 to 5 feet above the casinghead and the temperature of the fluid immediately after being emptied out of the bailer was 165 degrees. The driller placed the quantity of fluid in the hole at 400 feet, of which he estimated 150 feet to be water. Last May, at a total depth of 5,692 feet, the 6¼-inch dropped and corkscrewed and the driller formerly in charge carried about 3,000 feet of water in the hole for several months while trying to swedge out the kinks. Ingersoll stated that the water in the hole evidently came from this water carried on the formation as it was black and dirty and no clear water had made its appearance at any time. The 8¼-inch was cemented at 3,906 feet and the driller claimed that no water had been encountered below that horizon. The casing trouble was cleared up last December and the hole was drilled to 5,735 feet and on January 14 the well was shut down. That was about the date on which the showing took place and no announcement of it was made until February 16. The company and affiliated interests have been taking additional leases and buying royalties.

Speculation on Horizon

There is much speculation as to the identity of the horizon in which the oil was found. None of the major companies had any protection acreage around the well, it was seldom scouted, and no log is available. There is no evidence of structure at the surface as the entire area is covered with an overlay which hides all evidences of folding. The well was not located on geology, but was spotted by George N. McPhee with some kind of an instrument. McPhee, who is president of the MacDeb Drilling Co., was in charge of the drilling up to last fall when he was succeeded by Ingersoll. The area generally was supposed to be a deep syncline and estimates as to depth to the Dakota ranged all the way from 7,000 to 8,500 feet. This was based on at least 1,000 feet of the Laramie and Fox Hills and 5,000 to 7,000 feet of the Pierre shale. At 5,500 feet, Mr. McPhee expressed the opinion that the hole was bottomed in the lower part of the Niobrara shale. The total depth was 5,692 feet when Ingersoll took over the drilling and he drilled it from that depth to its present depth of 5,735 feet. He says this entire section consisted of chalk and lime with a few thin streaks of sand and that he classed it as the Niobrara. If these two interpretations are correct, the oil may be in the top of the Codell, or Nio-Benton sand. However, the opinion is expressed by most of the geologists familiar with the area that the hole most likely is in the Hygiene in the Pierre shale. It encountered a 3-foot vein of coal at 235 feet and an 8-foot vein at 250 feet. There were six water sands down to 1,295 feet and at 1,675-85 feet, there was a show of gas which burned on top of a hole full of water. There was a hard fine sand at 2,860-2,910 feet and at 2,885 feet, according to McPhee, 10 feet of sand showing light oil was penetrated. He expressed the opinion that this was the Hygiene. The 10-inch was cemented at 3,080 feet and 8¼-inch at 3,906 feet. Very little information as to the formations below that depth is available.

Started in 1926

The well was started in the spring of 1926 and has been drilling irregularly ever since. It has been in the limelight on several occasions due to incidents not directly concerned with the company itself. E. B. Dill, of Denver, was one of the original organizers. Charles A. Caruson, secretary and treasurer, was a textile engineer in the East and came to Colorado six years ago for his health from Manheim, Pa. It is understood that he owns a controlling interest. The MacDeb company has a half interest in the well and owns leases on 10,000 acres. The Fitzsimmons Oil & Leasing Co. owns the other haf interest in the well and a one-fifth interest in the drilling company and 8,000 acres additional. Altogether, the affiliated interests have 23,000 acres in the block. W. H. Ingersoll, the driller, came from Titusville, Pa., where he sold the Oil City Derrick on the streets. He landed in Colorado in 1917 and drilled the Padroni well near Sterling, Colo., which at that time was the deepest hole in the State, being below 4,000 feet.

The MacDeb well is 45 miles south and 30 miles west of the Platte Valley Petroleum Co.'s recent discovery on the Greasewood Dome in Weld County, and 35 miles southeast of the old Boulder Field, these being the nearest producers. The discovery, following the bringing in of the Greasewood Dome, again emphasizes the importance of the eastern Colorado area in which until recently, oil companies manifested little interest, but which now gives promise of becoming a major wildcat play.

Elbert County

J. M. Botts and others' No. 1 Buick, SE cor., Section 1-8s-59, near the town of Agate, is reported to be preparing to resume under new management. This well was started early in 1928, but a year later, at a reported depth of 4,120 feet, the casing was dropped and the hole reported junked. It was reported to have had one or two good shows of oil and gas.

Lincoln County

The Kelly Oil Co.'s No. 1 State, SE cor. NW, Section 36-14-57, in Lincoln County, which has been idle at 3,380 feet since December, 1929, has been taken over by the Eastern Colorado Oil Co., a newly formed concern, of which M. K. Mouser is president and C. Leonard Smith, of Denver, is vice president. The new company also takes over 5,000 acres surrounding the well. A new boiler has been moved in and a camp constructed. The hole is cased to 2,450 feet with a string of 4¾-inch. It is planned to underream and lower this string to bottom. It had a small oil show in the Pierre shale at 595 feet and a show of oil and gas at 1,350 feet. From that horizon on down several shows of oil and gas were encountered. The new interests taking over the well estimate that the Muddy sand will be found at approximately 3,450 feet.

Larimer County

The Standard Oil Co. of Colorado's No. 1 Hertha, NW cor., Section 21-4n-69, Berthoud Dome, which was reported last week showing some oil in the top of the Muddy, is drilling at 3,765 feet after passing out of a hard sandstone at 3,750-65 feet in which there was considerable oil. It was swabbed on Sunday and again Tuesday, the total being 125 bbls. The oil was lowered to 1,600 feet.

Continental Oil Co.'s No. 3 Scott, SW SE, Section 6-9-68, Wellington Dome, which is bottomed at 4,932 feet, 75 feet off the Sundance sand, is held up by a fishing job.

C. Leonard Smith's No. 1 State, SE cor., Section 36-12n-70, Sand Creek, is drilling at 560 feet in hard lime. It started in the Sundance and will be carried to the granite.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is bottomed at 3,864 feet and cleaning out.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, was reported drilling at 4,090 feet on February 14, the same depth reported for the past two weeks. It is understood that casing

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NEW PRODUCER ON ALBERTA SIDE OF THE RED COULEE STRUCTURE

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Feb. 21.—On the Alberta end of the international Red Coulee structure, Scottish-United Petroleums' No. 1, NW, LSD 1, Section 3-1-16w4, has brought in the sixth producing well on the Alberta side. The well got the sand at 2,407 feet, and was carried to 2,433 feet, where drilling ceased, with considerable oil in the hole.

The test is on the first offset location south of Southern Alberta Exploration Co.'s No. 1 producer, and has been logging about 10 feet higher, and the bit disclosed practically no Sunburst sand, where the Southern Alberta got 5 feet of that formation. Following a cementing job, drilling resumed from around 2,1[illegible] feet. When the sand was entered at 2,407 feet a little gas was met and on deepening oil rose steadily to 750 feet in the hole. Production test now in progress indicates around 65 to 70 bbls. a day or better, with very little gas. Scottish-United Petroleums, Ltd., is a Vancouver, British Columbia, company which secured a 40-acre tract from Alberta Pacific Consolidated Oils, Ltd., of Calgary; the lease is subject to 12½ per cent royalty, and the agreement calls for at least four wells to be drilled. William Maughan of Lehtbridge handled the drilling contract. Of five producers previously drilled on the Alberta end of the structure, four, Vanalta Oils' Nos. 1 and 2, Taylor-Vanalta's No. 3 and Southern Alberta's No. 1, are still in production and making an aggregate of around 200 bbls. a day; Alberta Pacific Consolidated's No. 1 took production for a short time and was later abandoned.

New Drilling Forecasted

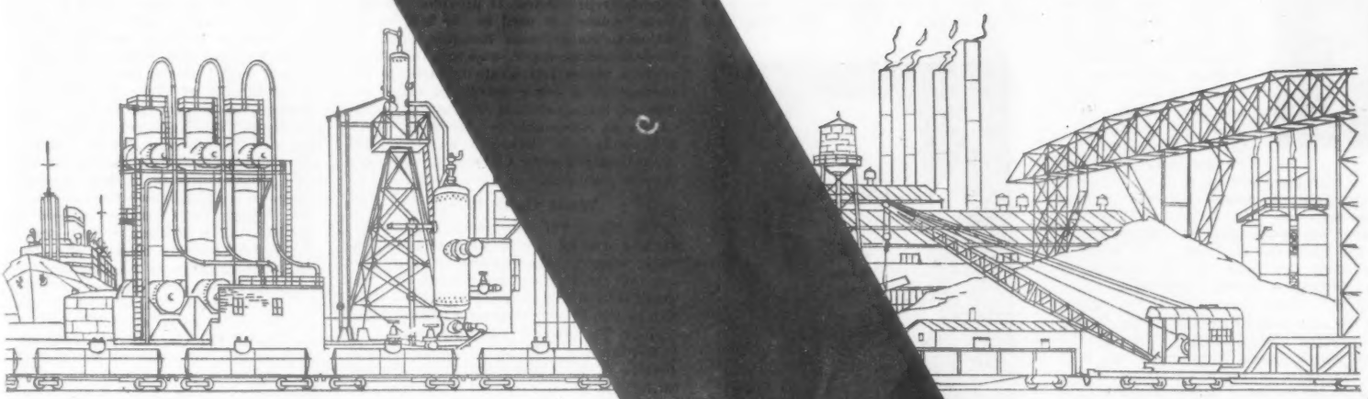
Completion of Scottish United's No. 1 as a producer has stimulated interest in the field, and considerable new drilling is forecasted for the spring. Scottish United Petroleums will continue to test its acreage. Other interests are reported negotiating for acreage held by Ko-Top Oils, Ltd., of Calgary in Township 1-17w4; Ko-Top's No. 1 a couple of years ago got oil and gas showings in the upper horizons but was abandoned around 1,650 feet owing to drilling difficulties. It is reported that Taylor Syndicate of Vancouver, which drilled Taylor-Vanalta's No. 3 producer, has arranged to finance another test. In the northwestern end of the field, Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, which has been standing for several months, is preparing to resume at around 2,200 feet. It is also reported that J. W. Elliott has the contract for Vanalta Oils' No. 3 to be started at once.

Two tests now standing on the Alberta end of the structure may resume in the spring. These are Devonshire Oils' No. 1, LSD 3-4, Section 10-1-16w4, which has been shut down at around 2,000 feet, and Dixie Oils' No. 1, LSD 15, Section 7-1-16w4, standing around 1,575 feet. Celtic Oils, Ltd., whose No. 1 test, LSD 4, Section 17-1-16w4, was abandoned at 2,560 feet, may drill a second test farther south and possibly a little west.

On the Montana end of the structure, Askalta Oils' No. 1 Vollbrecht, SE, Section 11-37-4w, is reported drilling in the

(Continued on Page 102)

WHERE RED SIGNALS SAFETY . . .



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Oil Bills in the California Legislature

One to Be Duplicate of Oklahoma Statute. William Reinhardt Chosen General Manager of North Dome Association

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 21.—The Kettleman North Dome Association, which recently elected John A. Brown, William Reinhardt and Carl A. Beal, president, vice president and secretary, respectively, has elected William Reinhardt as general manager. The selection of Mr. Reinhardt as manager of the North Dome Association came somewhat as a surprise, although it is the consensus that the association made a very wise selection. Mr. Reinhardt has submitted his resignation as vice president of the Shell Oil Co. and J. U. Stair of the Shell has been elected director of the Kettleman North Dome Association. Roy E. Collom, manager of operations for the Continental Oil Co. in California, was elected vice president of the Kettleman North Dome Association and will fill the office of presiding officer in the absence of President Brown, who is also president of the General Petroleum Corp. of California, a subsidiary of the Standard Oil Co. of New York.

The Kettleman North Dome Association has not lost any time in assuming an operating status, although, technically, the present restrictions imposed by the Kettleman agreement, signed in July of last year, are still in effect until April 1, at which time the present agreement is inoperative due to recent cancellation. The North Dome Association has not assumed physical control of any properties but has, nevertheless, authorized the drilling of two new wells immediately. Both projects are in the extreme western end of the North Dome and this particular section of the structure will be a hot spot from now on due to production activities of the Superior and the probable early completion of a producing well on the Union Oil Co.'s Amerada-King lease which adjoins the Huffman property of the Superior. The Pacific Western has staked location for No. 14 in the SW cor. N half, Section 28-21-17, adjacent to the Superior's holdings in Section 29-21-17. The Milham Exploration Co., controlling the S half, Section 28-21-17, has staked location for a new well to protect its acreage from drainage and an early spud is anticipated. Both wells are sanctioned by the Kettleman North Dome Association.

John A. Brown
President, Kettleman Hills North Dome Association.

Bills in Legislature

The oil industry will undoubtedly receive careful consideration when the California Legislature convenes next Tuesday, February 24, as there are a number of bills already introduced and several more to be submitted in the near future. Senate Bill No. 363, introduced by Senator Sharkey, is an exact duplicate of the Oklahoma statute. It is designed to prohibit excess production of crude oil, defines waste and provides an adequate measure for the determination of waste and the allocation of production to the several sources of supply and the several properties and provides penalties for any violation. This bill provides that the production of crude petroleum in the State in such manner under such conditions as to constitute waste is especially prohibited. It provides that the term "waste" as used in the bill, in addition to its ordinary meaning, shall include economic waste, underground waste, surface waste and waste incident to the production of crude petroleum oil in excess of transportation or marketing facilities or reasonable market demands. A bill similar in character was proposed for consideration by Charles A. Son more than a year ago.

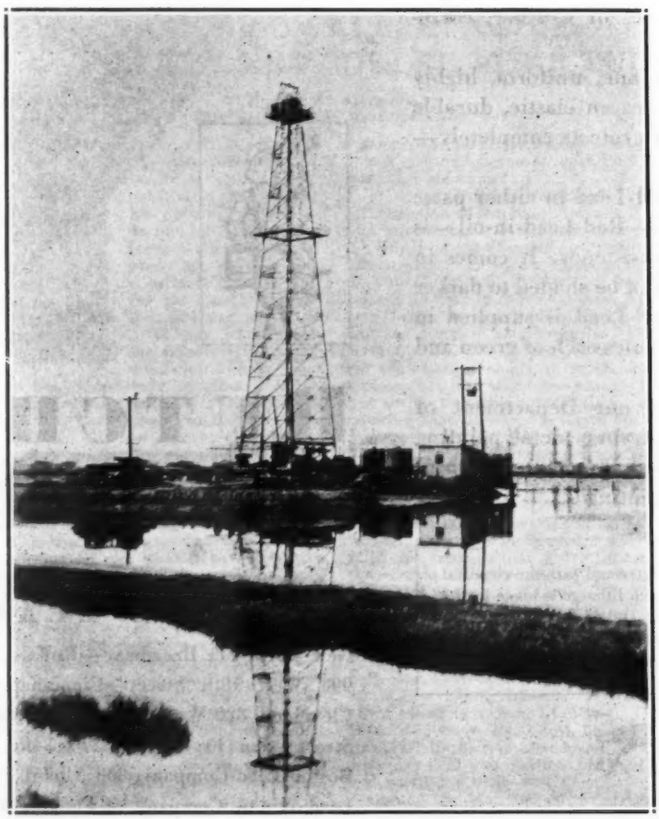
William Reinhardt
General Manager, Kettleman Hills North Dome Association.

World Depth Record

The Shell Oil Co. broke the world's drilling record for depth early in the week when it exceeded the previous record of 9,629 feet established by the Standard Oil Co. in No. 1 Mascot, a deep test in the Midway-Sunset Field of Kern County. The Shell's record-breaker is No. 1 Williams, a wildcat in the Semitropic district of Kern County, which was rotating a few days ago at 9,685 feet. If No. 1 Williams is ultimately finished as a commercial producer it will likewise be the deepest producing well in the world. The present record for deep production is held by a well of the Texon Land Co. in the Big Lake district of Texas. Extreme precaution has been taken by the Shell to eliminate mechanical trouble as far as possible as it is the intention of the company to reach at least the 10,000-foot level before the conclusion of work on this well. This does not necessarily mean that drilling operations will be suspended at this point as the geological formation and the mechanical condition of the hole will be the ultimate deciding factors.

Deep drilling is especially conspicuous in California at present as there are quite a number of deep tests under way, both in wildcat territory and in proven fields. The Shell is drilling another deep test in the San Joaquin Valley, although this project, No. 1 Porter Day in the Weed Patch section of Kern County, is not especially important so far as depth is concerned. Its significance lies in the fact that the present depth, 7,325 feet, may be greatly exceeded before the Temblor is picked up or the hole abandoned below the present known horizon. In Ventura County, the Chanslor-Canfield Midway Oil Co. is drilling a deep test approximately midway between the Rincon and Ventura Avenue Fields. This well, No. 2-A Hobson, in Section 23-3-24, is in a hard brown shale with frequent streaks of oil sand at 8,260 feet. The Continental Oil Co. has just spudded in No. 1 Grubb, an offset to No. 2-A Hobson, and this project will likewise require deep drilling. East of the Ventura Avenue Field, the Prairie Oil & Gas Co. is at 8,650 feet in No. 1 Sexton, an outpost in Section 30-3-22, which is being drilled for the purpose of developing an extension of the prolific Ventura Avenue Field.

In southern California the deepest incompleted drilling well at present is No. 7 Manuel of the Shell, in the Dominguez Field of Los Angeles Basin. This well is being delayed due to a stuck drill pipe at 8,922 feet and an effort is being made to circulate it loose with oil. The Continental Oil Co.'s No. 24 Selover is the second deepest project under way in Los Angeles Basin, as the bit in this hole was rotating a few days ago at 8,495 feet. The Standard is also working on a deep test in southern California, although this project, No. 1 Bastanchury, an outpost in the Coyote Field in Section 21-3-10, has a long way to go for drilling honors as it is only 7,850 feet.



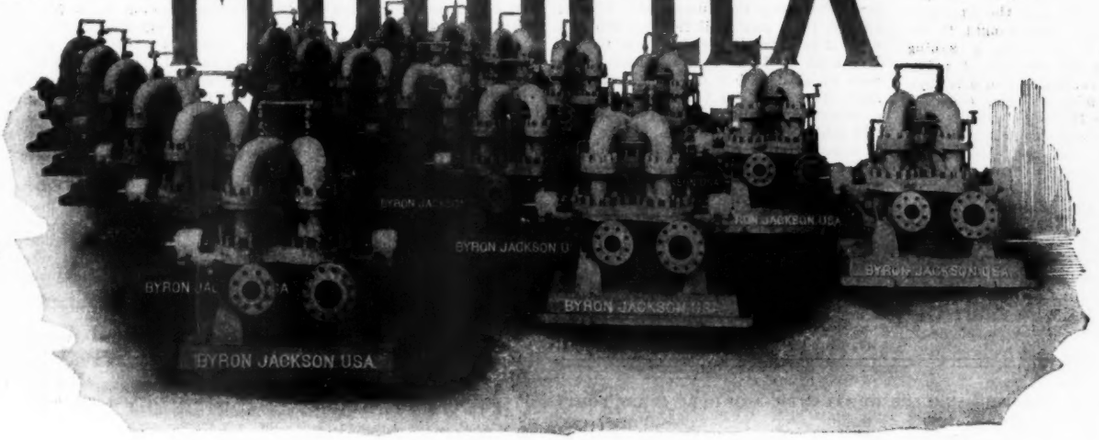
Union Oil Co.'s No. 1 Vidor, an outpost in the Playa Del Rey Field of Los Angeles Basin which required the construction of an artificial island before work could be started.

R. E. Collom
Vice President, Kettleman Hills North Dome Association.

New Horizon at Huntington Beach

The Huntington Beach Field has been in the limelight during the past few months due to deep drilling and, while the tests responsible for this interest are not as deep as many others under way throughout the State, they are perhaps of more importance due to the belief that a new productive horizon has been discovered. The deepest test in the Huntington Beach Field is the Superior's No. 1 fee, standing cemented at 7,648 feet, with 4¾-inch carrying 175 feet of perforated

MULTIPLEX



19 Byron Jackson Pumps for Phillips Pipe Line

WHEN the Phillips Pipe Line Company inaugurates service on its sensational 750 mile gasoline line from Borger, Texas to St. Louis, Byron Jackson Multiplex Pumps will be employed. The seven pumping stations along the line will be equipped with 19 Byron Jackson 4" 4-stage Multiplex oil line pumps. At each station two of these pumps operating in series will deliver 30,000 barrels per day against a total pressure of 750 pounds per square inch. The pumps will be driven by gasoline engines through reduction gears, operating at a speed of 3450 RPM. At each station a third pump will be used for stand-by service.

On completion of the witness tests, all pumps having exceeded their guaranteed efficiency, the Phillips Pipe Line Company expressed great satisfaction with both performance and mechanical design of the units.

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landed on bottom. W. E. McCaslin's No. 17 Transport has just passed the 7,200-foot level and, while good footage is being made, progress has been retarded for several days due to the necessity of being obliged to fortify the rotary drilling mud with baroid to prevent a premature blowout. Several other wells are getting under way in the Huntington Beach Field but this work is for the most part being delayed pending the outcome of present work.

The United States Circuit Court of Appeals upheld the right of the city of Los Angeles to enforce zoning laws within the corporate limits of the city, forbidding the drilling for oil in residential districts, and as a consequence, refused the petition of the Standard Oil Co. The Marblehead Land Co. and the Standard Oil Co. of California had sought to enjoin the city from enforcing a zoning ordinance holding the exercise of police power was so unreasonable and arbitrary that it was infringing on their constitutional rights. The District Court at Los Angeles had previously ruled adversely and the company took the case to the Circuit Court of Appeals. The court held there was no question in the case as to the power of the city of Los Angeles to enact zoning laws as the highest court of the State and of the Federal Government have upheld the right of a municipality to place reasonable restrictions on property development within its own limits. The tract is in the Culver City section of Los Angeles Basin, about 7 miles from the center of the city of Los Angeles.

Playa Del Rey

Daily production of the Playa Del Rey Field of Los Angeles Basin was down as low as 30,500 bbls. per day during the past week due to crude oil curtailment and a normal decline. Completions were few and far between during the past seven-day period and new wells will become less frequent in the future due to a substantial reduction in drilling operations. The Union, Ohio, Barnsdall and other operators which have been running two or more strings of tools, have reduced development work to a minimum and a further reduction is contemplated. The Barnsdall, which is developing the Burkes lease in conjunction with the Cypress Petroleum Co., successfully completed No. 11, a new well flowing 460 bbls. of 23.2 gravity oil per day from the Del Rey zone at 4,300 feet, the hole having been finished with a 6⅝-inch perforated liner. The Ohio Oil Co. killed No. 2-L, a recent completion at 5,719 feet, and will add a little more hole in the hope of stimulating production. The Union is making preparations to finish two new wells in the Playa Del Rey Field and both should result in commercial production.

Santa Fe Springs

Superior Judge Douglas Edmunds has marked off the calendar a hearing on a petition to make permanent a temporary injunction against gas wastage in the

(Continued on Page 102)

MAY ABANDON MUSKEGON DEEP TEST; FOUR OTHER WELLS BEING DEEPENED

By Paul A. Elliott

MUSKEGON, Mich., Feb. 23. — Contemplated abandonment of the first deep test well in the proved Muskegon Field marked the high point of interest in Michigan this week. Water which filled up the hole for 4,200 feet was struck at a depth of 4,705 feet in the Muskegon Deep Well Syndicate's No. 5 Herman Heinz, NE NE, Section 8-10n-16w, Muskegon Township. It is believed to be in the St. Peters sandstone. At 4,754 feet drilling operations were suspended until it is determined whether the well should be abandoned or carried to the projected depth of 5,200 feet.

On the advice of H. D. Crider, who located the discovery well in the field less than half a mile from the site of the first real deep test, it was decided to seek an analysis of the water for possible valuable chemical content. If the test proves successful the well may be produced for this purpose. If not it is probable it will be plugged and abandoned. About $50,000 has been spent to deepen the well from a former Dundee gas well originally completed at 2,050 feet by the Muskegon Oil Corp.

Despite the apparent failure of the first deep test it is reported other similar tests are being contemplated by some of the larger operators for other parts of the proved area. Four original Traverse or Dundee wells also are being deepened at least to the Monroe formation at about 2,250 feet. All four are located on the Muskegon River flats.

Drilling was started on two of these wells this week. They are the Muskegon Development Co.'s No. 1 John Toppen, SW NE, Section 9-10n-16w, an original Dundee gasser, and the Johnson Oil Refining Co.'s No. 2 Ludwig Heinz, SW NE, Section 9-10n-16w, an original upper Traverse oil well. The others are the Lima Oil Corp.'s No. 5 Louis P. Haight, NE SW, Section 9-10n-16w, an original Dundee oil well, and the Blue Arrow Petroleum Co.'s No. 1 Laman, SW NE, Section 8-10n-16w, an original Traverse oil well and later a lower Traverse gasser.

Western Wildcats

With activities comparatively quiet in the Muskegon Field interest has turned to two new wildcats started in western Michigan this week. One is H. C. Nel-

(Continued on Page 107)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	77,405
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	76,321	10,903	409,475	475,897
Gasoline	586,082	83,726	213,237	30,462	1,976,518	2,454,230
Coastwise—						
Crude oil	242,305	34,615	395,522	56,503	1,388,664	2,142,241
Fuel oil	245,702	35,100	484,590	69,227	2,324,794	2,328,251
Diesel and gas oil	29,675	4,239	30,834	4,405	258,054	228,129
Gasoline	209,649	29,950	243,287	177,042	1,393,651	1,510,303
Kerosene	11,063	1,579	7,749	1,107	63,281	7,124
Exports—						
Crude oil	170,153	24,308	250,351	35,764	1,128,089	1,040,393
Fuel oil	431,728	61,675	213,459	30,494	1,737,062	2,140,837
Diesel and gas oil	54,500	7,786	77,606	11,087	438,130	660,874
Gasoline	106,094	16,585	83,830	11,976	1,404,273	2,124,042
Kerosene	76,918	10,988	94,815	13,545	174,755	323,363
Lubricants	.....	.....	.....	.....	.....	5,057

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	88,280
Gasoline	.....	.....	63,975	9,139	63,975	132,350
Lubricants	.....	.....	11,000	1,571	11,000	.....
Coastwise—						
Fuel oil	.....	.....	70,951	10,136	383,839	486,364
Diesel and gas oil	.....	.....	.....	.....	.....	44,546
Gasoline	27,127	3,875	75,242	10,749	335,543	669,443
Kerosene	.....	.....	.....	.....	16,877	60,994
Exports—						
Crude oil	.....	.....	6,010	859	6,010	3,075
Fuel oil	.....	.....	7,650	1,093	63,610	122,143
Diesel and gas oil	.....	.....	113,156	16,022	113,156	122,650
Gasoline	75,080	10,726	61,325	8,761	233,155	549,913
Kerosene	95,451	13,636	.....	.....	190,412	133,749

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Olympic Realty Corp., No. 1 Barnes, Los Angeles Co.	14- 2-15	4,875		cleaning out
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	853		sd. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	5,650		sd. sh. drilling
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-15	rig		rigging up
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520		cleaning out
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	5,110		recemented
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525		suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,396		suspended
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co.	31- 3-14	3,300		testing
Cal. Oilfields Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	1,316		cemented
Cornisl Oil Corp., No. 1 Hermosa, Los Angeles Co.	31- 3-14	714		sd. drilling
Westwood Pet., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig		suspended
Tulsa Oil Co., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig		suspended
Wood, C. L., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	2,184		suspended
Alondra Co., Ltd., No. 1 Hawthorne, Los Angeles Co.	23- 3-14	rig		suspended
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665		suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	780		suspended
Shelley, C. M., No. 1 Torrance, Los Angeles Co.	12- 4-14	rig		suspended
Mack Oil Co., No. 1 Chatsworth, Los Angeles Co.	6- 2-16	rig		suspended
San-Van Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	2,124		wet
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	1,873		sd. sh. drilling
Arden Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	3,325		suspended
D. & B. Oil Co., No. 1 Puente, Los Angeles Co.	2- 2-10	4,620		suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,092		suspended
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,100		suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,030		cemented
The Texas Company, No. 1 Montebello, Los Angeles Co.	4- 2-12	1,854		sd. sh. drilling
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co.	28- 1-12	5,278		suspended
Wolfe, George, No. 1 Alhambra, Los Angeles Co.	24- 1-12	3,050		hd. sd. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	2,280		suspended
Rancho Oil Co., No. 1 Rosemead, Los Angeles Co.	30- 1-11	3,640		sd. sh. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,695		recemented
Nesa Pet., No. 1 Newport, Orange Co.	22- 6-10	4,910		suspended
Hall, H. L., No. 1 Newport, Orange Co.	29- 6-10	790		suspended
Gosell, T. F., No. 1 Newport, Orange Co.	29- 6-10	885		cleaning out
Standard, No. 1 Newport, Orange Co.	26- 6-10	3,750		hd. sd. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519		suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	4,175		suspended
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250		suspended
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392		suspended
San-Col Oil Co., No. 1 Colton, San Bernardino Co.	18- 1- 4	240		suspended
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	2,277		br. sh. drilling
The Texas Company, No. 1 Olive, Orange Co.	7- 4- 9	2,790		sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	5,575	br. sh. drilling
Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	5,570	suspended
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	6,050	fishing
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-33	1,800	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	4,450	cleaning out
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,485	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	redrilling
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	br. sh. drilling
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,766	br. sh. drilling
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,191	testing
Caldwell Brown, No. 189 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
Johnson, George, No. 1 Goleta, Santa Barbara Co.	X- 4-28	4,089	suspended
Prairie Oil Co., No. 1 Capitan, Santa Barbara Co.	33- 5-30	3,800	sd. sh. drilling
Cuyama Oil Corp., No. 1 Cuyama, Santa Barbara Co.	12-10-27	rig	suspended
Hart Pet. Co., No. 1 Cuyama, Santa Barbara Co.	27-10-26	....	material
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Prairie Oil & Gas Co., No. 1 Ventura, Ventura Co.	30- 3-22	8,650	sd. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
C.C.M.O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	8,260	br. sh. drilling
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	250	sd. drilling
Associated, No. 1 Fillmore, Ventura Co.	16- 4-20	....	location
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	5,450	sd. sh. drilling
Lockwood Valley Oil Co., well No. 1, Ventura Co.	32- 8-21	1,015	suspended
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	6,590	cleaning out
Kent & McDonald, No. 1 Tembior Hills, Kern Co.	3-32-23	1,673	suspended
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,230	cleaning out
General Pet., No. 1 Beiridge, Kern Co.	30-28-21	3,600	reaming
The Texas Company, No. 1 Beiridge, Kern Co.	22-27-20	4,600	sd. sh. drilling
Richfield, No. 1 Beiridge, Kern Co.	20-27-20	6,639	testing
Standard, No. 2 Beiridge, Kern Co.	31-27-20	4,558	sd. sh. drilling
Ohio Oil Co., No. 1 Beiridge, Kern Co.	36-27-20	5,653	reaming
Reward Oil Co., No. 1 Beiridge, Kern Co.	34-27-20	3,770	sd. sh. drilling
Union, No. 17 Beiridge, Kern Co.	16-27-20	4,980	cemented
Union, No. 1 Bacon-Beiridge, Kern Co.	21-28-20	2,150	suspended
Casa Mira Oil Co., No. 1 Beiridge, Kern Co.	29-28-20	rig	suspended
Tom Cannon, No. 1 Beiridge, Kern Co.	18-28-22	rig	suspended
Wallace, K. C., No. 1 Beiridge, Kern Co.	32-29-21	4,190	sd. sh. drilling
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy, No. 1 Arvin, Kern Co.	12-30-28	1,201	sd. sh. drilling
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	7,360	hd. sd. drilling
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	5,560	sd. sh. drilling
Shell, No. 3 Weed Patch, Kern Co.	32-30-29	2,720	sd. sh. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	5,966	recemented
Alpine Oil Co., No. 1 Weed Patch, Kern Co.	13-31-29	....	location
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,920	br. sh. drilling
Hannon, Tom, No. 1 Devils Den, Kings Co.	25-25-18	2,618	sd. sh. drilling
Shell, No. 1 Semitropic, Kern Co.	17-27-23	9,685	hd. sd. drilling
Cities Service, No. 1 Wasco, Kern Co.	16-28-24	2,550	abandoned
C.C.M.O. Co., No. 1 Jasmine, Kern Co.	31-28-25	1,741	cleaning out
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	750	suspended
Meridan Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,804	suspended
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	5,530	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	3,950	reaming
Carruthers Oil Co., No. 1 Fresno, Fresno Co.	4-17-20	rig	suspended
Miracle Oil Co., No. 1 Cuyama, San Luis Obispo Co.	17-10-25	314	suspended
Panorama Oil Co., well No. 1, San Luis Obispo Co.	7-31-21	4,019	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,525	suspended
Continental, No. 1 San Miguel, San Luis Obispo Co.	26-25-11	4,350	hd. sd. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	916	suspended
Martin, J. D., No. 1 Edna, San Luis Obispo Co.	5-31-13	2,010	suspended
Schockley, C., No. 1 Pismo, San Luis Obispo Co.	13-32-13	2,530	suspended
Pacific Inland, well No. 1, Monterey Co.	19-23-15	1,075	hd. sd. drilling
Brown, F. A., No. 1 Parkfield, Monterey Co.	15-23-14	816	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Murphy Oil Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	3,620	sd. sh. drilling
Kettleman Lakeview, No. 1 Tulare Lake, Kings Co.	11-23-19	1,304	cleaning out
Furman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	2,574	suspended
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	recemented
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	5,963	sd. sh. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	1,405	hd. sd. drilling
Grand View Oil Co., No. 1 Porterville, Tulare Co.	8-23-28	992	abandoned
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,192	cleaning out
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	825	hd. sd. drilling
Getty Oil Co., No. 1 Nigger Heaven, Yolo Co.	23-12- 3	2,050	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,100	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,355	sd. sh. drilling

Two Completions in Kilgore Field

One a Half-Mile Extension to South. Wells Estimated Good for 10,000 Bbls. Each. Fourth Well May Extend Production Northeast

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 23.—The Kilgore Field, northern Rusk County, saw the second and third completion of producers this week, and consequent extension to the south, approximately one-half mile, when E. M. Jones' No. 1 Crim and its east offset, W. Olvey's No. 1 Crim, both wells located in the Robert E. Winn Survey, came in for good producers estimated at around 10,000 bbls. each. The former well cored the Woodbine sand from 3,682-95 feet and was shut down and completed at the latter depth, making 125 bbls. the first 40 minutes and 91 bbls. the next 30 minutes through 2¾-inch chokes. The latter well was completed two days later for an initial production of 480 bbls. through one three-eighths-inch choke in 12 hours at a total depth of 3,709 feet.

Smith's No. 1 D. M. Peterson Heirs in the I. Ruddle Survey, approximately 1 mile northeast of the Bateman discovery well in the Kilgore area, is the fourth well due, and drilling of plug was expected to take place today, giving the pool an extension to the northeast and in the direction of the Farrell-Lathrop discovery well 13 miles to the north in Gregg County. Woodbine sand was logged from 3,660-68 feet in this well and casing has been setting cemented just above the top of the sand. Total depth is 3,698 feet. The Houston Oil Co. has an interest in this well, and also in the E. M. Jones well mentioned, and will connect the wells with a gathering line which will run to its loading rack located on the I.&G.N. railroad on the northwestern side of the Peterson heirs' farm, north of this last well. This line and loading rack furnishes the pool with its first outlet, and the company will ship out oil from the leases in which it is interested, and which prove productive, to its refinery at El Dorado, Ark.

Humble Delays Line

The Humble Pipe Line Co. paid off its crews and shut down on construction of its 8-inch lateral line, which is supposed to connect with the Kilgore Field from its Van-Louisiana line, and it is not known when construction will be resumed. Work was stopped at the pumping station site approximately 3½ miles north of the field, where pumps and equipment have been moved in for the station. No reason has been announced by the company.

Magnolia Moving Material

The Magnolia Pipe Line Co. has been moving material and equipment into the Kilgore area during the week, preparing to start work on its 10-inch line which will run from a 50-acre farm in the George W. Groce Survey, Norris lease, in Gregg County, approximately midway between the Kilgore and Farrell-Lathrop Pools, to its main line station east of the town of Center in Shelby County. Surface rights were purchased on the Norris lease by the company for pump station and tank farm and the company is moving two 80,000-bbl. tanks from its Midland, Texas, tank farm to this new site. Oil from the Kilgore and Lathrop Pools can be gravitated to this station and tank farm, where it will be run into the 10-inch and pumped through the 70-mile line to Center. At Center the oil will run into the company's 8-inch trunk line which runs from Arkansas to Neches on the Gulf Coast. The company will carry its own oil, and perform common carrier service for other operators in these two areas.

It has been reported repeatedly that the Arkansas Fuel Oil Co. would lay an 8-inch welded line from the Farrell-Lathrop area where it has a large block, and half interest in the discovery well, to the Louisiana Oil & Refining Co.'s refinery at Shreveport, but it was learned this week that plans for this line were practically dispensed with due to the Texas & Pacific Railroad lowering its freight rates to 7 cents per 100 pounds on crude from loading rack near Willow Springs to Shreveport, thereby meeting competition of the pipe line, and saving the company that immediate expense of laying the line. It is generally believed the company would take advantage of this cut in rates and not lay a line for the present. It now has a 6-inch line running from the discovery well to a loading rack at Willow Springs and is shipping out crude to Shreveport by tank car.

Drilling Operations

Brandon and McCamey's No. 1 Richards in the Mary Van Winkler Survey, 1 mile east of Kilgore and approximately 4½ miles northeast of the field, was drilling today at 3,450 feet after topping the Austin chalk at 3,428 feet at a minus 3,089 feet. Elevation of this test is 339 feet. Elevation of the Bateman discovery well is 403 feet and that test topped the Austin at 3,480 feet, making a minus of 3,077 feet, or the McCamey test running 12 feet lower. This makes the test look practically sure for a producer, extending the pool its greatest distance. The Arkansas Fuel Oil Co. and others' No. 1 Lathrop near Longview in Gregg County topped the Austin at 3,528 feet with an elevation of 401 feet, making a datum minus of 3,127 feet, running 50 feet lower than the Bateman discovery, and helping to prove the McCamey test for a producer.

Burton Drilling Co.'s No. 1 Florey in the Peter Holmes Survey, 2 miles northwest of the Bateman discovery, is now coring sandy lime below 3,655 feet, casting a rather ominous appearance over the acreage in that direction from the discovery, and making the field appear as running to the north and northeast instead of any farther to the west.

The Arkansas Fuel Oil Co., Farrell and others' discovery well on the Lathrop farm in the William Robinson Survey, Gregg County, was opened for a test this week for the benefit of officials of the Yount Lee Oil Co., and the well flowed at the rate of 14,000 bbls. per day. It was then choked in to 6,000 bbls. per day, and the deal is still pending.

The Arkansas Fuel Oil Co. is paying royalty owners under the Lathrop well 47½ cents for their royalty oil, and shipping it to Shreveport. Gas from this well tests 3 gallons of gasoline per 1,000 feet of gas, or of slightly higher content than the gas from the Joiner and Kilgore Fields which tests 2.70 and 2.72 gallons per 1,000 feet of gas.

Market Strengthened

East Central Texas crude market has been slightly strengthened this week due to the actions of some of the wells in the field last week and this week. George Anderson and others' No. 1 W. H. Frederick in the Juan Ximenes Survey, a three-quarter-mile northern extension to the Joiner Field, last week was opened for a test on February 19 and flowed 400 bbls. for one hour wide open. At the end of four hours it had decreased until it was making only 200 bbls. per hour, and went dead shortly thereafter. It has not flowed since it dropped completely off production, and it is now being swabbed to revive it. The Joiner discovery acted in this same manner, but this was caused by perforated casing sanding up, and choking down production, and perhaps the Anderson well can be brought back on production as was the discovery. Three other producers in the field have performed in the same manner, and the small amount of gas in the wells leads many to believe that many pumpers will be noted in the field within a short time, and the recovery of the wells be considerably smaller than was first anticipated.

There are now 26 producing wells in the three pools in Gregg and Rusk Counties with only one well in the former county, and three producers in the Kilgore area in northern Rusk, and the remainder in the Joiner Field. Twenty-five derricks are up and drilling progressing in the Kilgore Field with around 100 running and standing ready to spud in in the Joiner Field. There are 18 others running in the Farrell-Lathrop area.

Mammie Hammon and others' test on the Hamby farm in the Martin Lant Survey, 4 miles northeast of the Gregg County discovery, lost several joints of drill pipe this week and is fishing at 3,515 feet. This is one of the most interesting tests in this county, and is being closely watched to note whether it is to be an extension producer or a dry hole limiting production in this county and in this direction.

EAST CENTRAL TEXAS PRODUCTION

Boggy Creek	2,620
Cedar Creek	30
Currie	325
Hill County	30
Mexia	3,824
Minerva	404
Nigger Creek	175
Powell	4,869
Richland	115
Rusk and Gregg Counties—	
Joiner	19,590
Kilgore	4,350
Thrall	35
Van	31,031
Wortham	530
Total	67,988
Week ended February 14	57,763
Increase	10,225

Pipe Line Surveys

The East Texas Refining Co. has completed 7 miles of survey from its lease in the Farrell-Lathrop area to Longview and will start laying of line in a short time. It will serve a 6,000-bbl. skimming plant to be erected by the company at Longview.

The Pure Oil Pipe Line Co. (Prairie) has made a preliminary survey from

(Continued on Page 91)

EAST CENTRAL TEXAS WILDCATS

Week Ending February 23

CHEROKEE COUNTY

McDonald Bros.' No. 1 Newton, center of 113-ac. tract, Thomas Quevedo Sur., 3 miles N of Jacksonville .... Derrick.
R. G. Baker et al's No. 1 M. M. Tommie, 945 ft. N and 1,300 ft. E, William George Sur. .... Drlg. 3,200 ft.

DELTA COUNTY

Delta Development Co.'s No. 2 Hays Kinney, 300 ft. S of No. 1 Cooper, Townsite Sur. .... Shut down 1,558 ft.
D. S. Hoods' No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur. .... Shut down 1,559 ft.
Everett Drlg. Co.'s No. 1 Sansivy, 1,320 ft. N and 1,320 ft. W, J. B. Craig Sur. .... Shut down 2,130 ft.
Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur. .... Swabbed dry; T. D. 1,585 ft.

FANNIN COUNTY

J. A. Beck's No. 1 Morgan .... Dry and abandoned; total depth 3,501 ft.

GREGG COUNTY

Eslick's No. 1 Church Lot, 150 ft. N and 150 ft. W of N 15 acres, Dolores Sanches Sur. .... Drlg. 1,470 ft.
Bell & Graddy's No. 1 M. George or (Daniels), 225 ft. S and 650 ft. W of 26-ac. tract, Mary Van Winkle Sur. .... Spudded and shut down.
D. H. Felder's No. 1 Elder (Trip), 200 ft. N and 200 ft. W of Elder tract, J. W. McCorry Sur. .... Drlg. 3,550 ft.; top Pecan Gap 3,510 ft.
East Texas Refining Co. et al's No. 1 Fisher, 200 ft. N and 200 ft. W of E 98-ac. tract, John Ruddle Sur. .... Waiting on cement to set.
M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. .... Fishing 3,515 ft.
George McCamey et al's No. 1 J. F. Richards, 150 ft. from N and 150 ft. from W of 50-ac. tract, Mary Van Winkle Sur. .... Drlg. 3,186 ft.; base Pecan Gap 2,927 ft.

HENDERSON COUNTY

E. L. Chapman's No. 3 Cade, 1,650 ft. from N and 750 ft. W, J. B. Dorsey Sur. .... Shut down 4,619 ft.

HUNT COUNTY

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, W of Branson Sur., J. A. McFarland Sur. .... Derrick blew down.

LAMAR COUNTY

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft. E of 100-ac. tract, L. Roberts Sur. .... Shut down 1,400 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 J. A. Collins, 313 ft. from NE, 150 ft. from SE at right angles to line, A. Vieses Sur. .... Shut down 3,350 ft.

RED RIVER COUNTY

Droppleman and Bunely's No. 1 J. W. Cunningham, 250 ft. E and 250 ft. S of 180-ac. tract, S. B. Shi Sur. .... Drill stem test 36 thribbles of salt water in 7 minutes; T. D. 2,560 ft.
Everett & Allen's No. 1 E. Howison, 225 ft. S, 185 ft. W of 79-ac. tract, William Humphreys Sur. .... Derrick.
Everett & Allen's No. 1 Bryan, 1,200 ft. SW of NE cor. of Bryan 130 acres, P. Vaughn Sur. .... Location.

RUSK COUNTY

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N and 420 ft. from E of SE cor. of B. Smith Sur. .... Derrick.
Anderson's No. 2 Frederick, 50 ft. from S and 150 ft. from W of Frederick 35-ac. tract, Juan Ximenes Sur. .... Rig up.
Anderson et al's No. 1 G. T. Moore, 600 ft. from E along S line of tract, Juan Ximenes Sur. .... Derrick.
Anderson & Co.'s No. 1 Thompson, 150 ft. from N and 150 ft. from E, M. J. Prue Sur. .... Drlg. 2,500 ft.
Babcock Bros.' No. 1 Camp, 150 ft. from N and 171 ft. from E of 4-ac. tract, Juan Ximenes Sur. .... Drlg. 1,789 ft.
Bahaman's No. 1 W. M. Camp, 150 ft. from N and 150 ft. from W of 25-ac. tract, Juan Ximenes Sur. .... Building derrick.
Ball and Malone's No. 1 Bradford .... Oil sand 3,643-60 ft.; initial prod. 2,400 bbls.; total depth 3,660 ft.

(Continued on Page 91)

Terrell Test Deepened But Unchanged

Big Lake Wells Show Decline Since Tubing Has Been Completed. Continued Activity in Moore County, Panhandle

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Feb. 23.—Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 feet from the east and 330 feet from the south of Section 26, Block 161, G.C.& S.F., Terrell County, which topped a gas sand at 5,606 feet last week, was drilled deeper this week to a total depth of 5,612 feet without any increase in the 6,500,000 feet of gas which was formerly encountered. The test is now shut down for repairs.

This test is 9 miles due east of an old test drilled by the Sun Oil Co. on the Scott ranch and is approximately 16 miles northwest of O. O. Owens' No. 1 Mills in northwestern Val Verde County. The former test logged several showings of gas and oil between 3,500 and 4,000 feet, but was finally abandoned as dry at 4,010 feet. The latter test encountered 2,000,000 feet of gas around 2,950 and 3,000 feet, and is at present shut down at 6,770 feet. It did not encounter any showings which correspond to the gas formation found in the Mid-Kansas test. The test is located on a block of approximately 20,000 acres belonging to the company. Elevation is 2,695 feet.

If conditions in the industry were normal, and East Central Texas was not holding the center of the stage of all activities in the State, Val Verde and Terrell Counties would no doubt see considerable activity in leasing, and perhaps witness a few more wildcats drilled in this area, but with conditions as they are, this gas showing will attract but slight attention from anyone.

Big Lake Decline

The deep wells of the Big Lake Field, Reagan County, showed another decline in production this week, the second week in succession since the tubing of all the wells was accomplished. The eight deep producers flowed a total of 133,080 bbls. during the week, or 3,160 bbls. under the previous week's total. Group No. 1 Oil Corp.'s No. 1 University, the last deep well completed, showed another drop in production this week, falling off to 5,868 bbls. compared with 6,174 bbls. the previous week. The peak of its production was reached on February 6 when it flowed 8,687 bbls. and before it was tubed and started to decline in production. Before tubing was run it was gaining steadily each day, making the largest producer in the field.

Daily averages of the three Group No. 1 Oil Corp.'s wells show the following for the week: No. 1-B University, 2,911 bbls.; No. 3-B, 1,564 bbls.; No. 4-B University, 5,867 bbls. No. 2-B is drilling by drill pipe at 7,492 feet.

Big Lake Oil Co.'s No. 1-C averaged 1,811 bbls.; No. 2-C averaged 1,833 bbls.; No. 3-C averaged 165.4 bbls.; No. 4-C averaged 2,731 bbls., and No. 5-C averaged 2,129 bbls.

Deep Rock Oil Co. and others' No. 1 Kuykendall in Section 24, Block A-46, Public School Lands, west of the Ogden Pool in Andrews County, has not made any change in its production status, the oil rising only 2,500 feet in the hole in five days while drilled at 4,520 feet. It was formerly swabbed down at 4,506 feet.

Upton Wildcat Looks Dry

One more wildcat in Upton County looks as if it is ready to take the count as a dry hole with the lime being topped around 4,720 feet, making it 1,916 feet below sea level, extremely low for this area, and virtually promising a dry hole, and showing as if it may be directly in the trough of the Permian Basin. The well belongs to the Shell Petroleum Corp. and Penn Oil Co. and is on the Halamicek ranch in Section 93, Block D, C.C.S.D.& R.G.N.G. Survey. The former company core tested the block on which this test is located, but it only proves that the core test failed once more in the county. Shell formerly core drilled a large area northeast of Rankin in Upton County, and two dry holes were drilled on it, before the block was given up as dry.

Panhandle Activity

Six 10,000-bbl. tanks have been erected near the town of Altman in Moore County, and the Apache Refining Co. is getting ready to start construction on its 5,000-bbl. plant at that place, to process crude from the Jones lease in Section 164, to the north, which is the most active area in the Panhandle district at the present time with several wells drilling and some nearing completion. The Dana Oil & Gas Co., Jim Cloud, Continental Oil Co. and Shamrock Oil Co., and Delmar Oil Co. are the main active companies in this area.

The Panhandle district showed another considerable decrease this week dropping off 4,035 bbls. to a daily average of 50,010 bbls. from the previous week's average of 54,045 bbls., helping to bring down the daily average at a steady pace toward the 40,000-bbl. daily average set for the pool at a proration meeting held in Fort Worth in December, 1930.

But few locations and completions were reported in the Panhandle, and the Wichita Falls district which has been suffering for lack of market demand for its oil.

Wilbarger-Wichita Proration

Effective February 16 at 7 a.m. the Waggoner Refining Co. put into effect another proration schedule in Wilbarger and Wichita Counties whereby it will purchase 50 per cent of the production which is subject to proration. The first half of the month the company's purchases were only 30 per cent of the production. This gives these two counties more outlet, and will tend to help many of the small wells which have been shut in for lack of market demand.

The Waggoner Pipe Line Co. formerly charged a pipe line tariff of 17½ cents per barrel for crude run from Wilbarger County to Wichita Falls, but the company has decreased this tariff to 12½ cents. Pure Oil Pipe Line Co.'s new rate went into effect last week.

The Texas Pacific Coal & Oil Co. has completed its line into the Jacobs Pool, southeastern Cooke County, and has posted a price of 53 cents per barrel f.o.b. tank car, or 40½ cents at the well, making gathering charges run 12½ cents per barrel. Approximately 300 bbls. per day will be run through the line and shipped to the company's refinery at Fort Worth. Gravity of the oil runs around 24-25, but has a high gasoline content.

WEST TEXAS PRODUCTION
Week Ending February 21

County—	Wells	Bbls.
Andrews	3	144
Crane	373	18,913
Crockett	50	1,780
Ector	77	6,535
Fisher	10	899
Garza	1	27
Howard-Glasscock	536	26,160
Irion	7	63
Jones	76	1,214
Loving	37	3,285
Mitchell	151	1,967
Pecos	531	92,283
Reagan	255	31,690
Runnels	5	141
Scurry	5	5
Taylor	3	131
Upton	257	5,485
Ward	52	3,358
Winkler	593	51,740
Total production this week		245,820
Total production last week		245,791
Increase		29

COMPLETIONS IN WEST TEXAS

Fisher County

Roeser and Pendleton's No. 1 Littleton, dry and abandoned, total depth 3,218 ft.

Hudspeth County

G. R. Theison's No. 1 University, temporarily abandoned at 35 feet.

Jones County

Shaheen and Duffy's No. 1 King, top pay 2,002 feet, initial production 145 bbls., total depth 2,007 feet.

Crane County

Gulf Production Co.'s No. 88 McElroy, top pay 2,765 feet, initial production 290 bbls. after a 285-quart shot from 2,763-2,814 feet, total depth 2,983 feet.

Pecos County

B. C. Mann's No. 1 Scharff and Blackman, dry and abandoned, total depth 2,098 feet. J. D. O'Mara and others' No. 1 W. C. Streety, temporarily abandoned, total depth 2,210 feet. Phillips Petroleum Co.'s No. 1 Smith, location abandoned. Southern Crude Oil Purchasing Co.'s No. 1 Scharff and Blackman, dry and abandoned, total depth 2,550 feet.

Upton County

C. F. Corzelius and others' No. 1 J. H. Shirk, top pay 2,654 feet, increase at 2,692 feet and 2,705 feet, swabbed 48

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WILDCAT OPERATIONS IN WEST TEXAS

Week Ended February 23

Company, well, farm name, section and block—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor., Sec. 24, School Blk. A-46	Shut down 4,506 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 3,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's N. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Underreaming 6⅝-in. casing; total depth 2,775 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles S of Alpine	Shut down 1,750 ft.
COKE COUNTY	
Reed, Hitchens et al's No. 1 Duncan, 1,980 ft. from S and 1,680 ft. from E of Sec. 239, Blk. 2, H.&T.C. Sur. (4,500-ft. cable test)	Rig up.
CONCHO COUNTY	
Beesley et al's No. 1 Waring estate, 400 ft. from N and E, Sec. 163, T.&N.O. Sur.	Total depth 245 ft.; preparing to run 12½-in. casing.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Cleaning out 1,550 ft.
CRANE COUNTY	
Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Drlg. 4,932 ft.
Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W. Sec. 23, Blk. B-27, Public School Land	Drlg. 4,344 ft.; water exhausted.
Duffey et al's No. 1 Cowden Bros. Co. (Gulf), 990 ft. S and W of C. Sec. 81, Blk. X, C.C.S.D.&R.G.N.G. Sur.	Cem. 8¼-in. casing; total depth 1,960 ft.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 26, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
Taylor-Link Oil Co.'s No. 1 Mary Bullock et al, 330 ft. from N and E of Sec. 41, T.C. Sur.	Pumped 60 bbls. oil 12 hrs.; total depth 2,662 ft.

(Continued on Page 93)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending February 23

Company, well, farm name, section and block—	Remarks—
CARSON COUNTY	
Continental Oil Co.'s No. 1-A Jordan, 330 ft. S, 1,320 ft. W, SW, Sec. 123, Blk. 4, I.&G.N. Sur.	Drlg. 2,420 ft.
Interstate Prod. Co.'s No. 1 Burnett, C SE, Sec. 100, Blk. 4, I.&G.N. Sur.	Drlg. 2,630 ft; 13,000,000 ft. gas.
Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur.	T.P. 3,179 ft; flowing 100 bbls. per day with 3,000,000 ft. gas; T.D. 3,228 ft.
North American O. & G. Co.'s No. 1 Burnett, 1,341 ft. S, 662 ft. E, of S E¼ SE, Sec. 80, Blk. 4, I.&G.N. Sur.	Drlg. 650 ft.
Ochsner et al's No. 1 Moore, 330 ft. S. and E, NW NE, Sec. 20, Blk. 7, I.&G.N. Sur.	Drlg. 2,250 ft.
Plains Holding Co.'s No. 1 M. P. Co. fee, C N 10 ac., N½ NW SW, Sec. 40, Blk. 4, I.&G.N. Sur.	Spudded.
Plains Holding Co.'s No. 1-A Kolka, 660 ft. N, 710 ft. E, NE NE, Sec. 43, Blk. 4, I.&G.N. Sur.	Drlg. 2,560 ft.
Red River Gas Co.'s No. 5-A Bivins, 1,320 ft. S, 660 ft. E, Sec. 45, Blk. B-20, G.&M. Sur.	Rigged up.
Texas Interstate P. L. Co.'s No. 1 Burnett C S½ SE, Sec. 81, Blk. 5, I.&G.N. Sur.	Drlg. 2,025 ft.
Texas Interstate P. L. Co.'s No. 1 Burnett, C E½ SE, Sec. 51, Blk. 5, I.&G.N. Sur.	Spudding.
CHILDRESS COUNTY	
C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.
COCHRAN COUNTY	
Continental Oil Co.'s No. 1-B Slaughter, 4,950 ft. N and E, of League 134, Armstrong County School Lands	No information given out.
COLLINGSWORTH COUNTY	
Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur.	U.R. 12½-in. csg. at 535 ft.
COTTLE COUNTY	
Darby Oil Co. and Merry Bros. & Perrini's No. 1 Richards, 330 ft. NE, Sec. 13, B.S.&F. Sur.	Drlg. 3,150 ft.
GRAY COUNTY	
Adams, Prince et al's No. 1 Morse, 330 ft. NE SE, Sec. 6, Blk. 26, H.&G.N. Sur.	Estimated 7,000,000 ft. gas 2,050 ft.; estimated 17,000,000 ft. gas 2,245-60 ft.; T.D. 2,300 ft.; fishing tools.

(Continued on Page 93)

HERCULES FIRST SUPPLY COMPANY TO HAVE STOCK IN KILGORE

The above photograph shows the accessibility of this store to the field operations at Kilgore.

Acting with its usual speed to meet oil field conditions, the Hercules Supply Company has made supplies immediately available to operators in the East Texas field by establishing a store at Kilgore. This store is fully stocked to meet all requirements.

Deliveries from this point can be made within the hour to any of the wells in the Joiner-Henderson and Lathrop-Longview territories.

HERCULES SUPPLY COMPANY

J·T·McCARTHY JR
EVERYTHING FOR OIL WELLS

Spang Jars
Worthington Pumps
B-J. Elevators and Tongs
Regan Control Heads, etc.
Standard Seamless and Etna Pipe
Cameron Blow-Out Preventers, etc.
Fishing Tools, both Rotary and Cable
American Steel & Wire Co. Wire Lines
"Lucey," "Dreadnaught," "Regan" Rotary Tools

Gray Tools
Climax Engines
Baker Oil Tool Products
Walworth Valves, Fittings
Penberthy and Chicago Injectors
American Bull Ropes and Cat Lines
Oil W. Imp. Control and Oil Savers
Guiberson Tubing Catchers, Swabs, etc.
Hughes Rock Bits, Gate Valves, Core Barrels

General Office: FORT WORTH

Branches and Stores: Kilgore, Texas — Van, Texas — Pettus, Texas — Refugio, Texas — Arno (Porterville), Texas
Vernon (Grayback), Texas — Wink (Pyote), Texas — Longview, Texas — Hobbs, New Mexico

Pipe Line Construction News

BILL FOR STATE CONTROL OF CALIFORNIA LINES

LOS ANGELES, Calif., Feb. 21.—Senator J. I. Wagy of Kern County, has introduced a bill in the California legislature that calls for "designating as common carriers the owners, operators and managers of oil storage tanks and storage facilities, crude oil, gasoline and natural gas pipe lines, and transportation conveyances of all kinds used in the transportation of crude oil or natural gas and gasoline and forbidding discrimination by such common carriers."

Under terms of this bill, powers and duties of the State Railroad Commission would be enlarged with reference to conservation, transportation, storage and purchase of crude petroleum and its products, in this State.

It forbids discrimination in the purchase of crude petroleum and natural gas. In other words great companies which are producers and control pipe lines and now ship their own production first through the transmission lines, thereby closing the pipe line facilities to small operators, will not be allowed to practice such discrimination. Every producer of oil will be permitted to share in a ratable production program aimed to hold in check flush fields and give long established production areas an even break with the so-called boom districts.

FIFTY-MILE EXTENSION TO HAMMOND, LOUISIANA

SHREVEPORT, La., Feb. 23.—Completion of Mississippi Industrial Gas Co.'s 6-inch welded line from the Jackson gas field in Hinds and Rankin Counties south to McComb, Miss., is expected by company officials not later than March 1. As soon as possible thereafter construction of an extension of approximately 50 miles to Hammond, La., will be begun. At Hammond branch lines east and west to serve other communities in the vicinity are anticipated to follow as franchises have been obtained and are to be voted on.

The Jackson-McComb line, 81 miles in length and of 12,000,000-foot capacity, will supply Crystal Springs, Hazelhurst, Wesson, Brookhaven, Summitt, Magnolia and McComb and will be the first main line out of the Jackson Field to be completed. Its supply will be drawn from 10 wells in the Jackson Field, and will be delivered without necessity for the present at least of a compressor station.

JACKSON, MISS., LINE

The fact that Memphis Natural Gas Co. will extend its pipe line from Memphis to Jackson, Tenn., approximately 100 miles, is confirmed in the company's annual report, just made public by H. G. Scott, president.

The Memphis-Jackson extension of the company's main 210-mile pipe line, originating in the Louisiana field and now terminating in Memphis, is scheduled to be constructed and placed in operation this year. It will serve Jackson and intervening territory through arrangements made with West Tennessee Power & Light Co.

OLNEY POOL, TEXAS, LINE

The Olney Oil & Refining Co. of Olney in Young County is planning to lay a 4-inch line from its refinery at Olney to the Riggs or Larimore Pool in North Young County. The company has been purchasing crude from this pool, obtaining runs from the Texas Pipe Line Co.'s line and Continental Pipe Line Co.'s line which serve the field.

CONTINENTAL CONSTRUCTION CO.'S GAS LINE OVER HALF COMPLETED

By W. A. Spinney

The Continental Construction Corp.'s 24-inch gas line from the Texas Panhandle to Chicago is now more than half completed. Its total length is approximately 950 miles and 585 miles have been completed.

It is believed the entire main line will be finished and gas will be available in Chicago January 1, 1932. The construction work on the 2,000 miles of lateral lines will begin in the near future and this work may not be completed as quickly as the main 24-inch line.

When completed, the line will be operated by the Natural Gas Pipe Line Co. of America, a subsidiary of the Natural Gas Co. of America, which is owned by the following companies: The Texas Company, Skelly Oil Co., Phillips Petroleum Co., Insull interests, Standard Oil Co. (New Jersey), Columbian Carbon Co. and Southwestern Development Co. The latter company is owned by the Prairie Oil & Gas Co. and Producers & Refiners Corp.

It is estimated the line will represent an investment of $70,000,000 and will carry natural gas from the Texas Panhandle and from southwestern Kansas to Chicago, Milwaukee, Des Moines, Omaha and other middle western cities.

The divisions completed are: Project No. 1, from the corner of Moore and Hutchinson Counties, Texas, to the Oklahoma state line, which was completed several weeks ago. Project No. 2, covering 138 miles across the Oklahoma Panhandle, was completed in December. Project No. 3, consisting of 127 miles across the southwestern part of Kansas, was finished a few weeks ago. Project No. 4, which extends to the Missouri River, has approximately 13 miles yet to lay of the 140 miles.

The Missouri River crossing, which is Project No. 5, is approximately 90 per cent completed. Ten of the 10-inch pipe lines have been lowered into the river but the ice has delayed dredging. Work on the 143-mile project from the Missouri River to central Iowa is under way and 135 miles have been completed. Project No. 6, which consists of the balance of Iowa, has been let to the Oklahoma Contracting Co. and three gangs are preparing to start work March 1.

The Mississippi River crossing, known as Project No. 7, was let to the Pacific Bridge Co. of Portland, Ore., and it is expected work will start on that project in the spring. None of the construction in Illinois has been let.

Project No. 8 is approximately 158 miles and includes the work from the Mississippi River to Joliet, Ill., and the contract on this work will be let March 1.

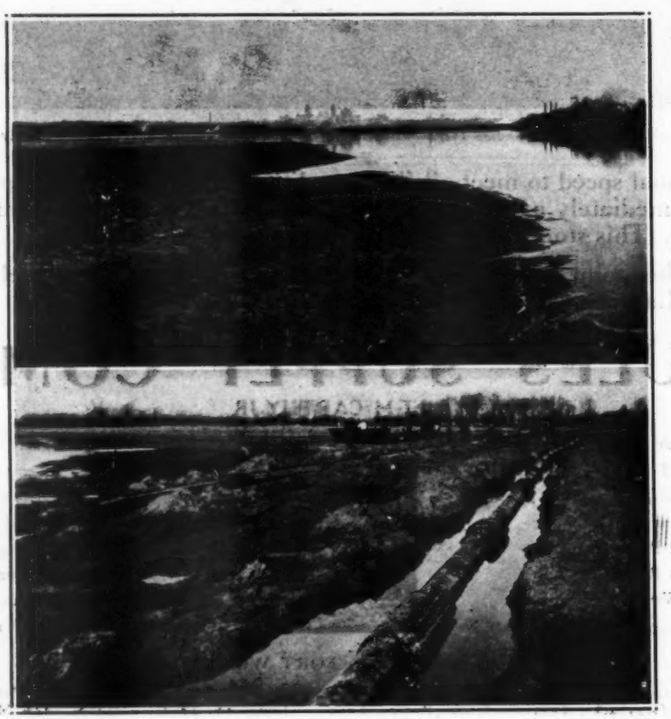
The balance of the main line is under construction at the present time and is Project No. 9, which is 60 miles of line from Chicago, west to Joliet. The work on this end of the line is under L. E. Myers Contracting Co.

The compressor stations Nos. 2, 3, 4, 5 and 6 are finished or will be in a few weeks. Stearns-Roger Co. built stations Nos. 2, 3 and 4. G. H. Siedhoff Construction Co. built stations Nos. 5 and 6. Stearns-Roger Co. has contracts for stations Nos. 7 and 8 in Iowa. Contracts for stations Nos. 1, 9 and 10 will be let later.

Approximately 50 miles of the 100 miles of gathering lines has been completed. These lines are being laid by Bechtel & Kaiser.

Dwight Chapin has the contract for the telephone system from Stinnett, Tex., to Plattsmouth, Nebr., and has completed approximately 600 miles of a four-wire telephone and telegraph system that parallels the pipe project throughout its length.

GOOD PROGRESS ON GASOLINE LINE



Below: Great Lakes Pipe Line Co. crossing Arkansas River at Tulsa. Above: View of Arkansas River at Tulsa where Great Lakes Pipe Line Co. crossed that stream. Tulsa skyline is shown in upper center.

The Southwestern Construction Co. of Tulsa is expected to complete its section of 6 and 8-inch line for the Great Lakes Pipe Line Co. by March 1. This section extends from Barnsdall to Okmulgee, Okla., and includes the crossing of the Arkansas River which has just been completed.

DETAILS ON CONTRACTS ON NORTH CENTRAL LINE

Contracts for construction of 378 miles of pipe line for the North Central Gas Co. in Wyoming and Nebraska are to be awarded immediately. It is estimated the line will cost $6,000,000. The western terminus will be at Muskrat, one of the major gas fields of Wyoming, about 75 miles west of Casper. Connection will also be made with the New York Oil Co.'s trunk line from Sand Draw to Casper. It is believed these two fields will furnish an adequate supply for the entire system but the Pilot Butte, Powder River and Pine Mountain Fields are accessible.

The first 227 miles will consist of 14-inch pipe. For the next 10 miles 12-inch, and then 63 miles of 8-inch. Between Wendover and Guernsey a lateral will be run to Laramie, consisting of 78 miles of 10-inch. The pipe will consist of 40-foot joints with Dresser couplings. There will be two booster stations, one at Casper and the other between Guernsey and Wendover.

The only part of the work which will be performed by the company's own organization will be the installation of the distributing systems in various municipalities. At Laramie, Scottsbluff, and Gering the company owns the artificial plants.

The peak production will be around 55,000,000 feet per day, delivered mostly in summer to sugar beet factories so the pull on the wells will be equalized throughout the year.

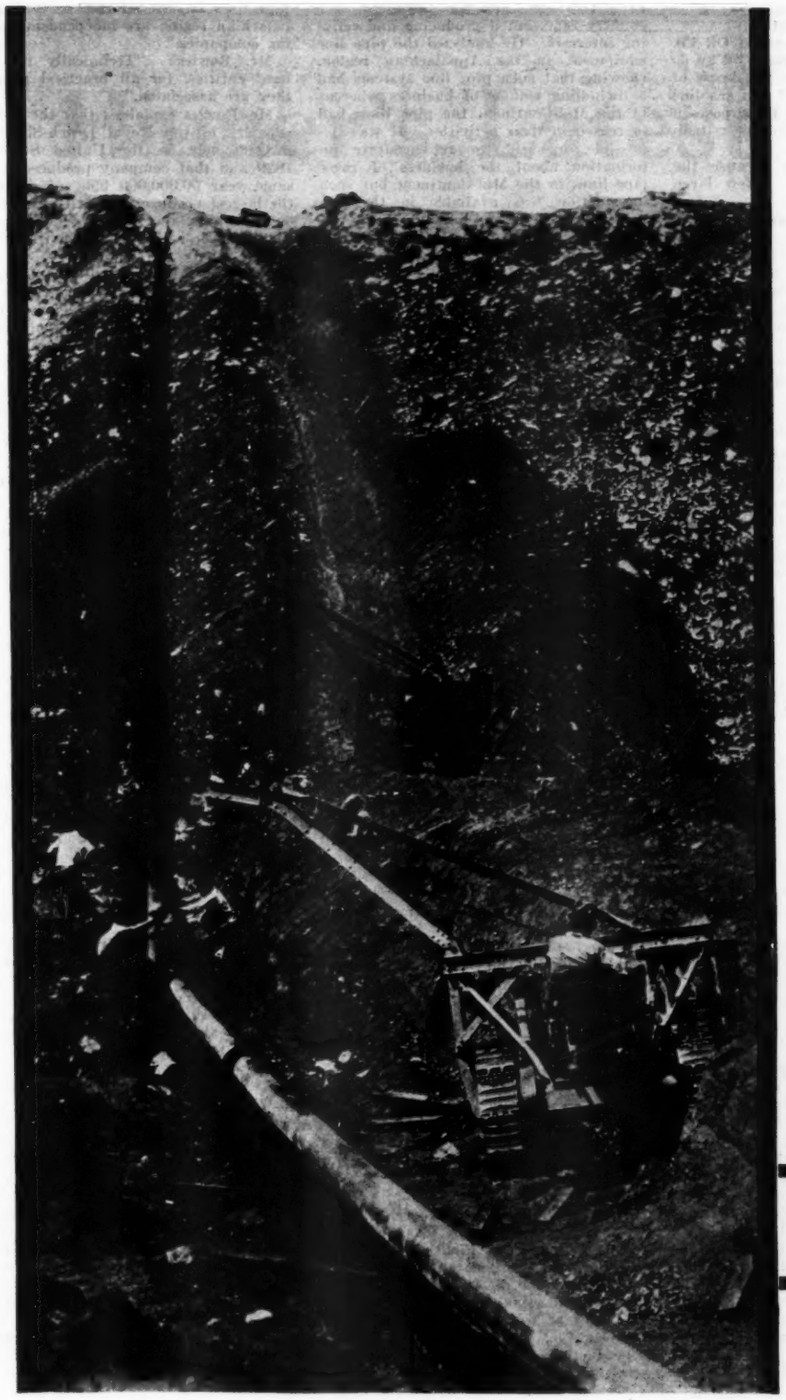
The eastern terminus will be at Bridgeport, Neb. Towns in Nebraska to be served by the system will be Henry, Lyman, Morrill, Mitchell, Scottsbluff, Gering, Minatare, Bayard and Bridgeport. Towns to be served in Wyoming will be Douglas, Orin Junction, Glendo, Wheatland, Torrington, Wendover, Guernsey, Fort Laramie, Laramie and possibly Lusk.

Practically the same interests will own the North Central Gas Co. as now own the New York Oil Co. and the officials will be practically the same.

Much of the preliminary work such as surveying, blue printing, and acquisition of right of way is completed. Contracts for the construction of the line calls for its completion by September 1, 1931.

Certificate of convenience and necessity for laying the line in Wyoming has been granted by the State Public Utilities Commission. In Nebraska it is not necessary to secure such a certificate, the rights of way being a private matter between landowners, municipalities, counties, and the State.

Franchises have already been secured in Laramie, Scottsbluff, and Gering. In Scottsbluff the vote was 944 in favor to 47 against.



Results...

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COMMITTEE HEARING ON PIPE LINE BILL

(Continued from Page 22)

Mr. Ritchie: "I believe they are arbitrarily fixed, the prices of refined products do not move with the prices of crude oil."

Mr. Garber: "There was not any competitive price to determine the posted price of the Prairie Oil & Gas Co. was there?"

Mr. Ritchie: "No, sir."

Mr. Garber: "That was the only price and other companies followed it. In fields where there was no other transportation they not only had a monopoly of transportation but they absolutely fixed the price of oil."

Mr. Ritchie: "The established price of the Prairie is the price paid for oil."

Representative George Huddleston, Alabama (Democrat): "Do the independent refineries purchase oil at a uniform price?"

Mr. Ritchie: "The small refineries have to pay the posted price of the purchasing company."

Mr. Huddleston wanted to know whether it might not be the other way around, whether the purchasing company offered the price it could get from the refinery, the witness replying that he did not know.

Price Origin

Mr. Huddleston: "The question is whether the price is fixed by the purchasing company or by the refinery."

Mr. Parks: "Is there anything to keep the Standard, the Gulf or The Texas Company from going into that territory and buying the oil and then transporting it through this same pipe line?"

Mr. Ritchie: No, sir."

Mr. Parks: "Is there any agreement between oil companies that would prevent them from doing that?"

Mr. Ritchie: "Not that I know of."

Mr. Parks: "It is a question whether railroads can compete with pipe lines. Are not pipe lines about to inaugurate pipe line transportation for gasoline as well as crude oil?"

Mr. Ritchie: "I do not know."

Mr. Parks: "Today crude oil is carried by pipe lines and refined products are carried by railroad."

Mr. Ritchie: "I know that two pipe lines apparently have been finished and are intended to carry gasoline."

Mr. Parks: "It will be carried through pipe lines cheaper than by railroad?"

Mr. Ritchie: "Yes, sir."

Mr. Parks: "That is what it is all about. Until the Prairie people went out of the market did you ever hear that a pipe line would not transport a barrel of oil for anybody anywhere?"

Mr. Ritchie: "No, sir."

No Consignee Available

Mr. Hoch: "The Prairie Oil & Gas Co. has been selling its oil to large integrated companies. Now the companies to which they sold oil announce they are not in the market to purchase any more oil from the Prairie company. While it is true that the pipe lines are compelled under the law to accept oil there was no consignee available. The consignee was the refinery owned by the same pipe line people and they did not wish to purchase oil. The consignee and the Prairie were associated companies. Is it your view that if the pipe line companies were separate, independent agencies, interested in production at one end and in refineries at the other, would spring up and that the Prairie Pipe Line Co. would transport for them? The relationship and common control exercised by a few great companies permits monopolies. Is that your idea?"

Mr. Ritchie: "That is my idea but I do not know."

Mr. Hoch: "Is it not common knowledge that these big companies have control?"

Mr. Nelson: "It seems to me it is the refinery that has control."

Representative John G. Cooper, Ohio (Republican), thought the independent refiners might combine and get their own oil transported under present conditions.

Mr. Ritchie: "I imagine they could."

Mr. Parks wanted to know why the witness did not talk about price fixing instead of about transportation.

"In my country the Standard Oil Co. posts prices," said Mr. Parks. "Why do you not come to that? Do you know of any competition between oil and gasoline people anywhere? One of them posts a price and the balance of them meet it up and down."

Mr. Ritchie: "That is because the products are marketed by a few large companies."

Would Cost Consumers More

Mr. Huddleston thought the witness' program was to go into the industry and stop only one of the oil men's activities, leaving the producers, refiners and distributors out of the picture. His interest was merely the consumer and if they should attempt to separate these four branches of the business into independent companies he thought it would cost more to the consumer.

"If the price is fair now, a larger price will have to be charged if these integrated companies are separated," said Mr. Huddleston. "That is the reaction I get from what has been said here."

Mr. Ritchie: "If transportation is separated from the other classes of business it will give more competition in marketing and refining because transportation is now closely associated with marketing and refining."

Mr. Hoch suggested that transportation was a public utility and the other branches of the industry did not exercise the same control.

Mr. Huddleston replied that these other industries constitute interstate commerce just as does transportation and Congress has the same right to regulate them.

Mr. Huddleston: "If we choose to do so we can forbid acts by these industries when they enter into interstate commerce. We can control transportation by railroad or truck or by any other means. We can control the distribution."

Mr. Mapes asked whether the independent refiner could afford to pay the producer a higher price than is paid by the Prairie company.

Mr. Ritchie: "At the present time we cannot."

I.P.A.A. Statistician Called

Charles E. Bowles of Tulsa, statistician of the Independent Producers of America, explained how different areas of the country represented producing and refining interests. He analyzed the pipe line equipment in the Appalachian region, showing that such pipe line systems had a dwindling volume of business whereas in the Mid-Continent the pipe lines had increased in their activities. It was impossible, he said, to get accurate information about the business of these pipe lines in the Mid-Continent but such information was available in the Appalachian region and he quoted profits that had been made in the past in the Appalachian region as indicative of profits now being made by pipe lines in the Mid-Continent, according to which he believed the Mid-Continent pipe lines were earning vast returns. In 18 years the Appalachian companies, capitalized at $150,852,000, had paid $350,000,000 in dividends. Asked how much he thought the pipe lines should make, he said he thought they should earn the value of their service.

Mr. Bowles said the oil-producing business had put into that business as a whole more money than it had taken out, and he thought that was not fair in view of the large profits made by the pipe lines. He said it had cost the producing end of the industry $1,000,000,000 more than they had obtained from it.

"That there is something wrong is a reasonable deduction," said Mr. Bowles.

Mr. Mapes: "If these carriers are independent companies the bill we have before us would not affect them."

He wanted the witness to explain how he connected these earnings of independent pipe lines with the purpose of the Hoch Bill.

Mr. Bowles: "The purpose of this bill is to make it possible for the oil producer to earn money. . . ."

Mr. Mapes: "But these pipe line companies to which you have referred as making large profits are in exactly the same situation as independent pipe lines as you want all pipe lines placed by this legislation."

Mr. Hoch: "Their operations being legal is one thing and being independent in a practical sense is another."

Mr. Bowles: "You can set them up as legal entities but you cannot stop their association."

Mr. Mapes: "This witness says the pipe lines he has referred to in the Appalachian region are independent operating companies."

Mr. Bowles: "Technically they are legal entities, for all practical purposes they are associated."

Mr. Bowles explained that the refining capacity of the Royal Dutch-Shell was 228,000 bbls. in the United States in 1929 and that company produced in the same year 56,000,000 bbls. of oil, being the largest producer in the United States —larger than the Standard Oil Co., and as a marketer it has 35,000 filling stations.

"The only reason the Royal Dutch-Shell has no refining capacity on the Atlantic Coast is that it has a refining capacity of 300,000 bbls. off the coast of Venezuela," said Mr. Bowles.

Railroad as Example

Mr. Huddleston referred to railroads that, while divorced from their coal properties, were operated under holding companies and there was nothing to prevent a holding company from operating a railroad and at the same time operating an independent coal mining company.

Mr. Bowles: "The Standard Oil Co. of New Jersey is today in a legal sense only a holding company into which all of the earnings of its several companies are paid."

Mr. Huddleston: "What bearing has this bill on that question?"

Mr. Bowles: "I cannot say."

Mr. Mapes wanted to know what were the earnings of the Standard Oil groups engaged in the production of oil and the witness replied that that figure was not available to anybody outside of the Standard.

Mr. Mapes: "Do you think they are losing money in their producing business?"

Mr. Bowles: "I do not know anybody outside of their organization who can answer that question."

Mr. Mapes: "Have you any idea they are losing money?"

Mr. Bowles: "I think they are making money."

Mr. Mapes: "So far as you know they may make more money in production than anyone else."

Mr. Bowles: "I do not know."

Mr. Mapes: "I think you have given a good deal of interesting information but I do not know what bearing it has on this bill."

Mr. Bowles explained that the Standard Oil had allowed other people to produce oil and had gone in the business of drilling largely to obtain an assured supply of crude oil because of the needs of its refining business.

I.C.C. Refuses to Approve Bill

The Interstate Commerce Commission has declined to approve or disapprove the Hoch bill to separate pipe line companies and oil companies as the railroads were divorced from their coal companies. In a report to Chairman James S. Parker of the House Committee on Interstate and Foreign Commerce, Chairman Joseph B. Eastman of the Legislative Committee of the Interstate Commerce Commission, says:

"We have no hesitation in expressing the opinion that the 'commodities clause,' as applied to railroad companies, is sound in principle and in the public interest.

"Whether or not there is need for extending the application of the 'commodities clause' to other common carriers subject to the act is a question upon which the commission has little information. Our understanding is that the amendment accomplishing this result which is proposed in H. R. 16,695 is aimed particularly at pipe line companies. While the commission has a limited jurisdiction over such carriers, extending to the rates which they charge for interstate service, it has had little occasion to exercise this authority. The commission has prescribed accounting regulations for pipe line companies, secures periodical reports from them, and has required them to file published schedules of their rates and charges; but on only one occasion has it been asked to regulate these rates and charges. The commission's published re-

GAS WELL IN TIOGA COUNTY, PA., BLOWING 80,000,000 FEET PER DAY

CORNING, N. Y., Feb. 21.—What is believed to be the largest gas well ever drilled east of the Mississippi River is blowing a volume of gas estimated at between 80,000,000 and 100,000,000 feet into the air. The well is Penn-United Gas Co.'s No. 1 Meaker, in Tioga Township, Tioga County, Pennsylvania. One of its owners estimated that over $100,000 per day is being blown away while the owners await the coming of a crew of Halliburton experts with material to put the big well under control.

The well came in at 1 o'clock Wednesday morning with a flow of 1,000,000 feet when a few inches in the Oriskany sand. Late Thursday the well had drilled itself farther in the sand and was registering a flow of 4,000,000 feet. The well was cased and drilled farther into the sand. Friday afternoon it was reported as a 14,500,000-foot producer and late Friday evening was reported to be blowing at the 80,000,000-foot rate.

The well was brought in at a depth of 4,197 feet on the south slope of the Sabinsville anticline. Experienced gas men were willing to believe that the Meaker, once it was cased and drilled deeper, would exceed the discovery well of the Allegany Gas Co. on the Palmer farm, 4 miles distant, which is now producing 2,500,000 feet per day.

Penn-United is owned by Brooks Johnson of Wooster, Ohio; Frank and S. J. Brendel of McKeesport; Sid Donnon and W. McK. Smith of Washington, Pa. The corporation has a large acreage in the Tioga Township section under lease. Jack Payne is its representative in Wellsboro.

New Locations Made

Another purely wildcat location has been made by the Allegany Gas Co., discoverers of the Tioga Field. This location is on the Wellsboro anticline, 14 or 15 miles from the discovery well, on the Sabinsville anticline and near Mainsburg.

A survey of No. 1 Kemp of the Allegany Gas Co., which failed to show a gas production at 4,400 feet, showed that a straight hole had been drilled. Drilling has been resumed and is now 4,700 feet. The well is now believed to be in a fault and the lower sands are being drilled in order to determine the extent and nature of the fault.

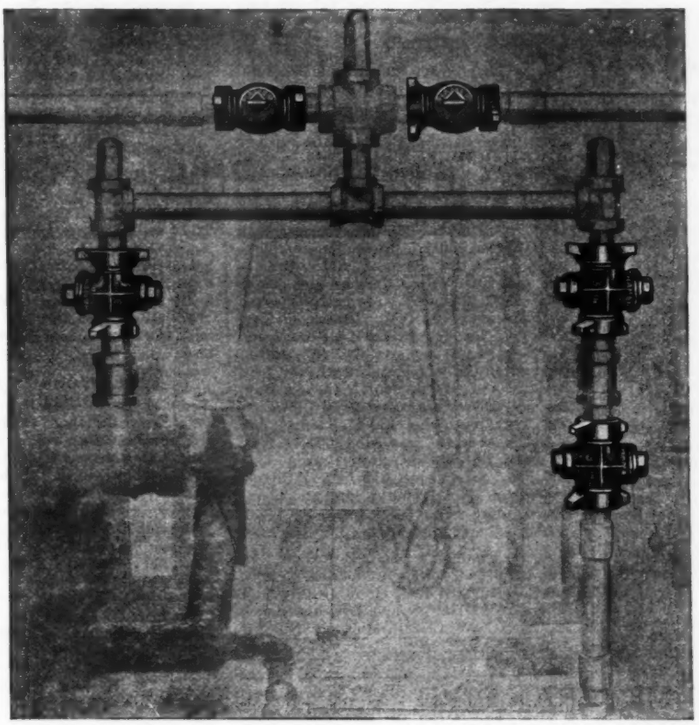
The Allegany Gas Co. has made a location for No. 2 Kemp.

Others Near Sand

Friday night the Penn-Ohio test, drilling on the Close farm, Farmington Township, Tioga County, was within a few feet of the Oriskany. Lycoming Gas Co.'s Frank Ackley well at Sabinsville and the J. E. Trainer well on the Bostwick place were thought to be nearing the Oriskany sand at depths in excess of 4,000 feet.

Cased with heavy pipe set in concrete by the Halliburton process, J. C. Trees' well on the Farr estate, Lawrence Township, was drilled in with an increase from an initial flow of 500,000 feet a day to a daily production of nearly 10,000,000 feet. Drilling ceased when the drill was but 8 feet in the gas sand and the well was capped to await orders from the owner.

Hamer's Latest Stop Cock



Hamer "Noblindo" Pressure Seal Stop Cocks

Made of Grade A Chrome Nickel Steel

All Hamer Stop Cocks are built of the finest chrome nickel steel obtainable, thus assuring positive, dependable and safe operation at all times with an indefinite long life.

The Hamer Stop Cock is noted for its ease of operation which is the result of balanced pressure exertion construction and complete grease lubrication.

Hamer Stop Cocks are superior for high pressure hydraulic work.

In Hamer Stop Cocks the opening through the stop is considerably larger than that of the pipe line used in connection with the particular size of valve and has round corners thus preventing cut-outs. Core head and nuts on all sizes from 2 inches up to and including 4 inches have 2½ inch hexagon heads and nuts.

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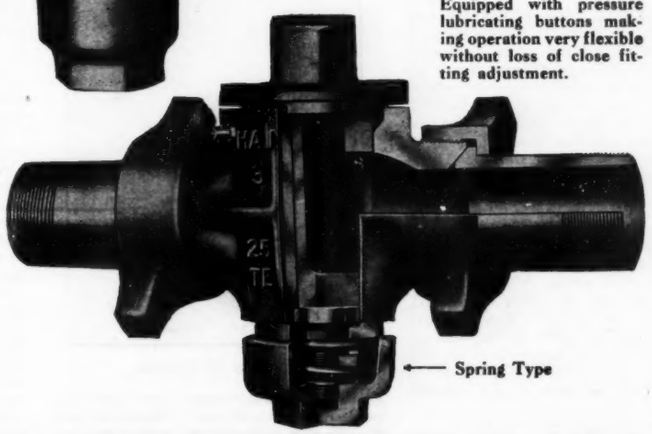
Standard Type (Regular Threads)

Made in all sizes to meet every requirement. Reinforcement ribs built in the body of the shell give sufficient strength with a minimum of weight, thereby assuring safe operation at high pressure.

Sub and Wing Nut Type

Equipped with pressure lubricating buttons making operation very flexible without loss of close fitting adjustment.



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HAMER PRESSURE SEAL STOP COCKS

ports contain only three reports dealing with these carriers.

"In 'In the Matter of Pipe Lines,' 24 I. C. C. 1, decided June 3, 1912, the commission construed its authority over these carriers, and ordered certain pipe line companies to file schedules of their rates and charges. This exercise of authority was sustained in large measure, although not completely, in 'The Pipe Line Cases,' 234 U. S. 548.

"'Conditions Affecting Crude Petroleum,' 36 I. C. C. 429, October 11, 1915, was a report to the Senate of the United States transmitting facts relating to (1) the control of pipe line companies, and (2) the discontinuance of the running and purchase of petroleum in 1914 and the reasons therefor.

"In Brundred Brothers vs. P. P. L. Co., 68 I. C. C. 458, decided April 15, 1922, Division 2 of the commission found that the rates for the transportation of crude oil by pipe line from wells in Kansas, Oklahoma and Texas to Franklin and Lacy Station, Pa., were reasonable, but that the rule requiring shipments to be tendered in quantities of not less than 100,000 bbls. was unreasonable to the extent that it required tenders in excess of 10,000 bbls.

Information Insufficient

"These reports show clearly the community of interest which has existed, and doubtless still exists, between the pipe line companies and various oil producing and oil refining companies. The information which they contain, however, much of which relates to past periods, is not sufficient to enable us to express the opinion with any certainty that this community of interest gives rise to conditions which warrant the extension of the 'commodities clause' to pipe line companies. It seems quite possible that such conditions exist, but without further investigation and ascertainment of the facts we would not be justified in expressing an opinion upon this point. No doubt existing conditions will be developed in public hearings before your committee, and after such hearings you will be better able to form an opinion than we are at the present time. Upon present information we feel unable either to oppose or approve what is sought to be accomplished by H. R. 16,695.

"If, however, your committee as a result of its investigations should reach the conclusion that the application of the 'commodities clause' should be extended to all common carriers subject to the act or to any such carriers in addition to railroad companies, we suggest that occasion be taken to perfect the wording of the clause. Question has arisen as to whether the clause, as it is now worded, applies not only to situations where a railroad company controls or is financially interested in an industry whose products is shipped over its rails, but also to situations where the industry controls or is under common control with the railroad company. It has been argued that it does not apply to the latter situation and that the Supreme Court has not yet so held. Without conceding the validity of this argument, it does appear that the wording of the clause could be bettered, so that this question would not arise. This might be done, we think, by making the last five lines of H. R. 16,695 read in some such way as this: 'mined, or produced by it, or under its authority, or produced by or under the authority of a company which directly or indirectly controls or is under common control with such carrier, or which it or any such company may own in whole or in part, or in which it or any such company may have any interest, direct or indirect, except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier.'"

WEST TEXAS FIELDS

(Continued from Page 50)

bbls. in 12 hours, but hole did not fill after swab, dry and abandoned, total depth 2,743 feet.

Ward County

Rickford and Smith's No. 1 Johnson, top pay 2,145 feet, initial production 110 bbls., total depth 2,178 feet.

RUNS THROUGH TRUNK LINES

Company, size and location—	Bbls.
Atlantic, 10-inch, Houston	27,983
Gulf, 10-inch, Ranger	26,668
Humble, 2 and 8-inch, San Angelo	32,508
Humble, 10 and 12-inch, Comyn	43,653
Illinois, 2 and 8-inch, Del Rio	36,858
Magnolia, 8-inch, De Leon	26,262
Pasotex, 8-inch, El Paso	11,201
Shell, 10-inch, Healdton	27,849
Shell, 10-inch, Houston	19,543
Texas, 12-inch, Houston	24,136
Total	276,661

RUNS TO WEST TEXAS REFINERIES

Amarillo Ref. Co., Pyote	None
Big Spring Ref. Co., Big Spring	1,476
Burford Ref. Co., Pecos	3,910
Cosden Ref. Co., Big Spring	8,468
Col-Tex Ref. Co., Colorado	6,347
Humble Oil & Ref. Co., McCamey	5,703
Great Western Ref. Co., Big Spring	2,743
Wickett Ref. Co., Wickett	277
Total	28,924

TANK CAR SHIPMENTS

Big Lake from Texon	3,000
Fox and Thorsen from Mertzon	64
Thomas-Brann from Grant City	...
Santa Fe from Hurdle	55
Southern Crude from Wickett	18,598
Total	21,717
Total daily average distribution	327,302
Total daily average production	283,354
Daily average from storage	43,948

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Dean Brothers' No. 1 Andrews, dry and abandoned, total depth 1,029 feet. Fain & McGaha's No. 1 Ikard, dry and abandoned, total depth 1,240 feet.

Jack County

Brazos River Gas Co.'s No. 1-B Clayton, total depth 3,001 feet, plugged back to 2,920 feet, gas sand 2,883-2,905 feet, initial production 3,000,000 feet of gas.

Cooke County

Gose-Harvey and others' No. 2 Jacobs, top pay 1,564-82 feet, initial production 10 bbls., total depth 1,582 feet.

Young County

B. C. Bonner's No. 1-C Belknap, dry and abandoned, total depth 722 feet. O. Bratcher's No. 7 Cullers, top pay 561 feet, initial production 10 bbls., total depth 575 feet. Christie Brothers' No. 1 Watson, dry and abandoned, total depth 670 feet. J. P. Coleman's No. 1 Foster, dry and abandoned, total depth 550 feet. Consolidated Oil Co. and others' No. 1 Green and others, dry and abandoned, total depth 1,096 feet. Roy L. Crawford's No. 1 Garrett, dry and abandoned, total depth 1,502 feet. Deep Oil Development Co.'s No. 1 Lowe, dry and abandoned, total depth 742 feet. F. H. E. Oil Co. and others' No. 7-C Finch estate, top pay 674 feet, initial production 30 bbls., total depth 677 feet. Halmack Oil Co. and others' No. 7 Carpenter, temporarily abandoned. Kliner & Riggs' No. 5 Larimore, total depth 720 feet, plugged back to 719 feet, initial production 60 bbls., top pay 714 feet. Primrose Refining Co.'s No. 1 Baldwin estate, dry and abandoned, total depth 813 feet. (Formerly reported abandoned at 700 feet.) Producers Tool & Supply Co. and Bridwell Oil Co.'s No. 3 Finch estate, top pay 623 feet, initial production 68 bbls., total depth 630 feet. Stastny and others' No. 1 Eichelberger, dry and abandoned, total depth 928 feet. The Texas Company and McKanna's No. 3-A Finch estate, gas sand 654-64 feet, oil sand 664-76 feet, initial production 150 bbls., total depth 676 feet. Williams and others' No. 1 Helton, dry and abandoned, total depth 1,205 feet.

Wichita County

J. D. Swanner's No. 2-B Parker, top pay 1,266 feet, initial production 35 bbls. total depth 1,284 feet. H. A. Beasley and others' No. 1 Hall, temporarily abandoned location. G. W. Clark and others' No. 1-B Allen Kemp, top pay 1,240 feet, initial production 50 bbls., total depth 1,248 feet. T. F. Hunter and others' No. 3 Anderson Refining Properties, top pay 1,242 feet, initial production estimated at 35 bbls., total depth 1,246 feet. The Texas Company's No. 395 Waggoner, top pay 1,514 feet, initial production 50 bbls., total depth 1,526 feet.

Wilbarger County

Golding-Cochran's No. 7-H Waggoner, temporarily abandoned, total depth 2,254 feet.

Foard County

L. Webb and others' No. 1 Thompson, dry and abandoned, total depth 2,154 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Gray County

Danciger Oil & Refining Co.'s No. 8-A Johnson, top pay 2,850-3,035 feet, initial production 25 bbls., total depth 3,242 feet. Empire Gas & Fuel Oil Co.'s No. 1 Roscoe, top pay 2,655-2,877 feet, initial production 27,000,000 feet of gas, total depth 2,883 feet.

Hardeman County

Joe Woods and others' No. 1 Berry, temporarily abandoned, total depth 1,003 feet.

COMPLETIONS IN RANGER DISTRICT

Callahan County

Production Purchasing Co. and Humble Oil & Refining Co.'s No. 2 Dyer, top pay 1,006 feet, initial production 12 bbls., total depth 1,010 feet.

Coleman County

Brown, Ekholm and others' No. 1 Golson, top pay 1,591 feet, initial production 750 bbls., total depth 1,597 feet (was formerly temporarily completed for an initial production to 366 bbls. at 1,593 feet).

Comanche County

Fain and others' No. 1 White, dry and abandoned, total depth 755 feet.

Eastland County

Mays and others' No. 3 Brashear, dry and abandoned, total depth 1,508 feet. Ed Keaugh's No. 3 Jones, total depth 3,540 feet, shot 95 quarts from 3,482-3,530 feet, initial production 60 bbls. spraying with 300,000 feet of gas. Lone Star Gasoline Co.'s No. 2 Alexander, total depth 3,939 feet, plugged back to 3,480 feet, shot 100 quarts 3,424-76 feet, initial production 648,000 feet of gas with 650 pounds of pressure.

Shackelford County

Graham & Lash's No. 1 Sedwick, dry and abandoned, total depth 565 feet.

Stephens County

Lyman and others' No. 1 Parks, top pay 2,253-61 feet, initial production 12 bbls., with 887,000 feet of gas, total depth 2,261 feet.

NORTH TEXAS PRODUCTION

Week Ending February 21

Panhandle district—	Bbls.
Carson County	4,140
Hutchinson County	8,095
Gray County	37,085
Moore County	291
Potter County	6
Wheeler County	399
Total production this week	50,010
Total production last week	54,045
Decrease	4,035
Wichita Falls district—	
Archer County	13,002
Baylor County	841
Clay County	634
Cooke County	1,880
Foard County	81
Jack County	750
Haskell County	31
Montague County	3,994
Throckmorton County	342
Wilbarger County	10,215
Wichita County	20,677
Young County	11,088
Total production this week	63,535
Total production last week	64,202
Decrease	667
Ranger district—	
Brown County	3,691
Callahan County	1,486
Coleman County	1,326
Comanche County	726
Palo Pinto County	330
Eastland County	3,044
Shackelford County	3,941
Stephens County	4,619
Total production this week	19,163
Total production last week	19,562
Decrease	399

W. T. CUSHING, VETERAN PIPE LINE BUILDER, DIES IN DALLAS

William T. Cushing, internationally known pipe line expert of over 30 years' experience, died in Dallas, Tex., on Monday, February 16, at the age of 59 years. He had been a resident of Dallas six months, having moved there from Houston, Tex. The body was taken to Washington, Pa., for burial.

Mr. Cushing was born in the Pennsylvania oil region and his parents took him to Bradford in the late seventies. His father was engaged in the oil business as a drilling contractor and was prominent as such in the northern Pennsylvania fields. In the middle eighties

William T. Cushing

when the Pennsylvania fields were extended southward into Allegheny and Washington Counties the family removed to Washington, Pa., where young "Bill" went to work for his father.

When the Corsicana, Tex., Field was opened in the late nineties, Mr. Cushing was placed in charge of the first pipe line building from the Corsicana pools to the refineries. With the discovery of oil at Spindletop, near Beaumont, Mr. Cushing was called in by the newly organized Texas Company to lay lines from the field to the company's refinery. He became superintendent of the pipe line department of the company, with which he was associated for some years.

Glenn Pool to the Gulf

Construction of the first pipe line crossing Texas followed in 1907 when The Texas Company laid a line from northern Oklahoma to Port Arthur, Tex. Martin Moran, now president of the Texas Pipe Line Co. of Oklahoma, superintended the construction of the line from the famous Glenn Pool southward to the Red River, and Mr. Cushing headed the work of laying the line from the Red River to the Gulf Coast.

Moving to California, Mr. Cushing became general manager of the Union Oil Co. of Los Angeles. He also played an important part in the early pipe line development of the California fields, building lines across the mountains from Bakersfield to the coast.

By this time his reputation had become international, and he was called to Europe by the Rumanian government to build the lines in the Rumanian fields. Following three years abroad, he returned to Texas with the Humble company, leaving it at the end of three years to join the Fensland Oil Co., at San Antonio, Tex.

When pipe line companies began the serious study of corrosion problems and sought to find preventives of corrosion of pipe they turned to the big paint and chemical companies for advice and assistance, and the Dearborn Chemical Co. of Chicago made Mr. Cushing its representative in the Mid-Continent and coastal fields and several years were spent in the service of that organization, with headquarters in Houston. He resigned about a year ago to go into business for himself, but later joined the Headley Emulsified Products Co., which company he was representing as sales engineer in the oil and gas industries at the time of his death.

Central Ohio Field Is Showing Spurt

Total of 23 Completions and 16 New Operations. Interest in Shallow Gas Production West of Toledo. Detailed Indiana Report

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 23.—In the territory west of Toledo and in the eastern part of Fulton County, Ohio, there is a possibility of the drilling of many shallow wells for gas, as a well has just been brought in at a depth of 118 feet on the William Donnelly lot at the little hamlet of Ai, 4 miles north and a little west of Swanton. This well shows a rock pressure of 41 pounds and was drilled for water and is only a few feet from the lotowner's residence. The gas has been piped into the residence for use in the kitchen and furnace, and all done at a little cost. These wells usually show a long life production when used at a single residence. Reports are that a number of wells will be drilled by other parties in the vicinity and indications are very favorable at and around Swanton for shallow gas. Many farmers in the southern part of Michigan are using gas, found from 100 to 650 feet, for fuel in their homes, the lower gas vein being the best, as one well is known to have furnished fuel for a farm home for more than 19 years. This shallow gas is usually found in the low lands. This is a part of the old Lima division.

The only completion reported from the old Lima Field for the week was Newcomer and others' test on the Richard Carter farm, Section 21, Pitt Township, Wyandot County, which was a dry hole. Top of Trenton was found at 1,361 feet and drilled 250 feet in that formation to a total depth of 1,611 feet.

In Pleasants Township, Hardin County, Pleasants Oil & Gas Co. is drilling No. 4 Minnie Burnison farm, and the Ohio Fuel Gas Co. drilling No. 1-5,408 H. L. Oates farm, Section 5.

CENTRAL OHIO

The Central Ohio Field showed a spurt with 23 completions, 5 of which were producers with an initial production of 105 bbls., 8 dry holes and 10 gas wells, while in new work starting there were 10 locations staked and 6 started, a total of 16.

In Ashland County, Lake Township, Gold Crown Oil & Gas Co.'s No. 7 Harry Horn farm, Section 21, pumped an initial of 15 bbls. from 556-98 feet. Ohio Fuel Gas Co.'s No. 1-5,338 Ira W. Hines, Section 21, Jackson Township, was dry. Same company drilled in a gas well in No. 1-5,406 Ohio Penn Land Bank property, Section 13, Orange Township.

In Medina County, Chatham Township, Edson & Son's Co.'s No. 13 Marcus A. Frank farm, Lot 20. Chatham Township, pumped 20 bbls. in 24 hours from 416-65 feet. The Preston Oil Co.'s No. 2-1,472 Ira Cleveland farm, same lot, produced 15 bbls. initial from 417-65 feet, and is drilling No. 18-1,471 S. and E. Clapp farm, Lot 5, same township. In Litchfield Township, same county, Davis & Clark found a dry hole in No. 7 F. W. Anderson farm, Lot 1, from 357-69 feet.

In Lorain County, Ridgeville Township, Clyde Daugherty is drilling on the Cornelius Mohr farm, Lot 42, and McMillan and others are drilling No. 2 G. and N. Allen farm, Lot 89, Columbia Township, same county.

In Wayne County, Hulse & Kundtz have a light gas well in No. 3 Edward Ladin farm, Section 19, Chester Township, at a depth from 3,151-56 feet. Ohio Fuel Gas Co. drilled its No. 1-1,735 J. E. Fetzer farm, Section 9, Cannon Township, and showed a gauge of 40 bbls. initial after producing for many years.

Holmes County

In Holmes County, Monroe Township, the Kemrow Co. found a dry hole in No. 4 Charles Barnes farm, Lot 5.

In Cuyahoga County, Strongville Township, in the Cleveland Field, Dillon & McFredericks are starting a test on the W. C. Fetterman farm, Lot 58.

In Knox County, Jefferson Township, the Ohio Fuel Gas Co.'s No. 1-5,340 Margaret A. Staats farm, Section 5, is a gas well. Upham Gas Co. is starting a second test on the J. B. White farm, Section 23, Union Township.

In Coshocton County, eight new locations were staked in Perry and Newcastle Townships. Preston Oil Co.'s No. 1-1,462 J. L. Myers farm, Section 6, Perry Township, is reported good for 5 bbls. and a fair gas volume from 3,108-58 feet.

In Summit County, Franklin Township, F. A. Brendall and others' No. 2 Charles E. Wise farm, Section 24, is a very nice gas well from 3,986-88 and 4,002 feet.

In Licking County, Fallsburg Township, Sterl Brown's No. 8 H. A. Noland farm, Section 21, is reported good for 10 bbls. from 751-62 feet. George H. Long's No. 2 Granville Ashcraft farm, Section 2. Perry Township, is a very light gas well from 622-28 feet. Wehrle Gas Co. drilled in a light gas well on the G. H. Edwards farm, in the third-quarter section, McKean Township, from 2,448-75 feet.

In Muskingum County, Hopewell Township, Hopewell Gas & Fuel Co.'s test on the John C. Slide farm, Section 6, is a dry hole from 3,138-68 feet. In Washington Township, two dry holes are reported, Ohio Fuel Gas Co.'s No. 1-5,399 J. C. Bloom farm, Lot 14, at 3,932 feet, and the Atha Co.'s No. 1 John F. Brown and others farm, in the third-quarter section, was also dry at 3,992 feet.

In Athens County, Carthage Township, a light gas well was drilled by the Ohio Fuel Gas Co. in No. 2-5,137 Alexander Justice farm, Section 4, in the Keener sand from 1,199-1,225 feet. Fairfield Gas Co. drilled a dry hole in No. 2 R. E. Wilson farm, Section 34, Lodi Township, in the second Berea sand from 1,575-78 and 1,629 feet. Smithenberger is drilling on the Peter J. Glass farm, Section 28, Alexander Township.

In Stark County, Jackson Township, F. A. Brendall and others got a good gas producer in No. 1 on the Lake Cable Co.'s land, Section 14, and the Penn Oil & Gas Co. found a good gas well in No. 1 Mary A. Killinger farm at from 4,145-66 feet, where a fishing job is under way. This well is in Section 6, same township. No. 2, same farm, is drilling. Medford Oil & Gas Co. is drilling on the Lantz and Clovis farm, Section 25, same township.

In Belmont County, Somerset Township, John Jefferies and others have a light gas well in No. 1 Gallagher-Burkhart farm, Section 33, in the Berea sand from 1,758-72 feet. In Union Township, Frank Strange and others have had a bad fishing job for a long period on the Shriver-Dallers farm, Section 27, Union Township, and have at last completed the well from 1,741-57 feet and dry.

Field Notes

The test drilling by Timken and others on the A. T. Snyder farm, Section 8, Paris Township, Stark County, has quite a record of various formations found. Stray sand was found from 5,056-65 feet; red sand 5,065-94 feet; show of gas, white Clinton, very hard and fine, 5,095-5,118 feet; gray sand 5,118-43 feet; gray sand 5,151-68 feet; white sand 5,168-74 feet; gray sand 5,174-76 feet; red rock 5,129-5,250 feet, and still drilling.

Kistling and others' No. 5 John Klinger farm, Section 21, Jackson Township, Perry County, reported top of the Berea sand at 760 feet, 15 feet in sand, total depth 775 feet and hole filled one-half with water in 12 hours, and goes as a dry hole. Same parties' No. 2 William Spohn farm, Section 28, same township, topped Berea sand at 800 feet and at 2 feet in sand produced a fair volume of gas. Same parties' No. 1 Charles E. Huston farm, Section 29, same township, topped Berea sand at 757 feet and to a total depth of 762½ feet, only a volume of gas found.

INDIANA

Two completions were reported from the Indiana fields. In the old Trenton Rock area, Walter Todd and others drilled a test on the John Glancy farm, Section 22, Washington Township, Blackford County, which is estimated around 3 bbls. a day. In the same field but in Madison Township, Jay County, V. V. Ford abandoned No. 1 J. Parks farm, and Nos. 1 and 2 R. D. Wheat farm, all three in Section 12. R. D. Hance is drilling on the Davis Brothers farm, Section 27, Penn Township.

Clara E. Kinsey abandoned old Nos. 1, 2, 3, 4, 5, 6 and 7 D. W. Bonifield farm, in Salamonie Township, Huntington County.

Norris, Patterson and others found a dry hole on the James Haskins farm, Section 4, Harrison Township, Daviess County, at 805 feet. Ben D. Ruble is drilling No. 1 Eunice and Oscar Sellers, 200 feet from the west line, 460 feet from the east line of the NW Section 9, Barr Township, same county.

E. M. Treat is starting a well on the John Bretz heirs farm, in the southwest 17 acres in the NE SE, Section 34-5s-10w, Center Township, Spencer County.

The test of the Texana Oil Co. on the S. McCullough farm, Section 10, Barton Township, Gibson County, instead of being a dry hole, is a small producer at 1,317 feet.

In Perry County, Troy Township, Roger E. Williams and others have abandoned Nos. 1 and 2 John Backer farm, Section 13.

Mack Leighty and others are starting a test on the Charles Slag farm, SE SE, Section 32, Center Township, Vanderburg County, near the well recently found on the poor farm.

According to reports the southern portion of Indiana will be given a heavy drilling play the coming spring, if crude prices are such that the operator can see his way clearly. Much leasing has been done in many parts of the State, but that does not mean anything until tests are put down.

Indiana Oil and Gas News

Compiled by Paul F. Simpson, state gas supervisor, Department of Conservation, Division of Geology, Indianapolis, Ind., by counties.

Blackford County—A small well was completed on the John Glancey farm, Section 22, Washington Township, by Walter Todd and others.

Crawford County—The Louisville Cement Co. is cleaning out No. 1 Speed in which a small gas flow was reported after the shot.

Daviess County—James E. Young completed No. 1 William Robinson, in Harrison Township, at 900 feet. Initial flow was 400,000 feet of gas.

Gibson County—The Indiana Southwestern Gas Corp. is down 3,985 feet in the L. W. Gudgel test in Section 25, Columbia Township. They have finished reaming and are drilling deeper.

Hancock County—J. H. Snider is starting No. 2 Frank Felt in Section 17, Brandywine Township.

Huntington County—Clara E. Kinsey abandoned the D. W. Bonifield Nos. 1, 2, 3, 4, 5, 6 and 7 in Section 19, Salamonie Township.

Jay County—V. V. Ford abandoned No. 1 J. Parks and Nos. 1 and 2 R. D. Wheat in Section 12, Madison Township.

Knox County—Wells & Joyce have started No. 1 J. P. and R. A. Beard in Section 22, Busseron Township. The Gardner Petroleum Co. has started No. 1 J. P. Beard in the NE Section 10 in the same township. Same company is starting No. 1 Ruth Winemiller in the NW Section 14.

Madison County—The Pendleton Gas Co. completed a very good gas well on the Charles Cox farm north of Pendleton.

Monroe County—The Petroleum Exploration Co. is rigging up for a test on the Mahala Baxter farm in Section 20, Salt Creek Township.

Perry County—Roger E. Williams and others' wells on the John Backer farm in Section 13, Troy Township, have been abandoned. Conyers, Roetzel & Bugg have brought in a new well just north of their gas wells near Bristow, which produced 20 bbls. of oil. Seitz and others have resumed drilling No. 1 Isaac Seibert in Tobin Township and will test deeper sands.

Pike County—James E. Young completed No. 1 Matilda Bilderback in Section 23, Washington Township, at 1,057 feet, where it showed 3,500,000 feet of gas. A second well has been started on the same lease. In the same section No. 1 Charles H. Carlisle was completed as a dry hole at 1,196 feet by the Wiser Oil Co. Bolyard and others found No. 1 Heacock dry in Section 30, Patoka Township. H. H. Risher completed a dry hole at 1,183 feet on the R G. Salyard lease in the NW Section 30, Washington Township. In Section 19 of the same township, C. E. Wommer abandoned No. 1 Timothy Shea. James E. Young found No. 1 Sarah F. Stansell in Section 23, Washington Township, dry in the Barker and Brown sands.

Spencer County—No. 2 Marie Berg, drilled in Section 2, Hudd Township, by the Santa Fe Oil Co. was dry in the Jackson sand but will be tested for a deeper pay. Liggett & Melon have resumed drilling in No. 1 William F. Grass, in the same section, after completing a fishing job. Herman Hagedorn and others are spudding in on No. 1 Heubscham, northeast of the Berg wells. Seitz & Medley will start a well on the Phillips heirs lease, in the NW Section 11. Steffey & Grass are starting No. 1 Gus Sauter in Section 2, same township.

Sullivan County—Fred Bays got a 700,000-foot gas well on the M. B. Jewell farm in Section 29, Curry Township. In Section 32, J. C. Ellis is drilling on the William Jewell farm. Same company is drilling No. 1 on the Martz estate in the same section. Ellis completed No. 2 Alva Martz in Section 32 at 536 feet, where a gas well with 200 pounds pressure was developed. A small gas well was also reported at 548 feet on the Alva Martz farm in Section 29, drilled by Fred Bays. H. Huntsman and others got a gas well on the Katherine Piety farm in Section 7, Turman Township, and have drilled 350 feet in a second well.

Vanderburg County—The Vanderburg Oil Corp. found a small well at 945 feet on the county poor farm in Section 32, Center Township. A location is being chosen for the company's third well.

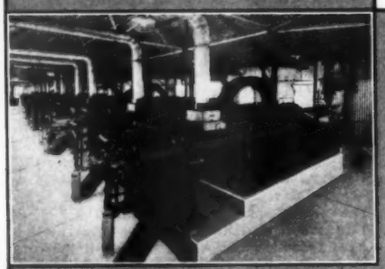
Vigo County—J. C. Ellis completed and shot No. 1 well on the Clay Ladd (Riggs) lease in the northwest section of the Siosi Field. It started at 100 bbls. In the northeast section of the pool the Ohio Oil Co. is down 1,250 feet in No. 2 Mabel Prevo. The Siosi Oil Co. is drilling No. 2 William Riggs in Section 32, Prairie Creek Township, at 1,550 feet. Same company found its shallow gas test on the Whalen farm in Section 33 dry at 560 feet. Thomas & Ellis are drilling on the M. P. Collins farm in Section 31. A

(Continued on Page 128-D)

CLARK

Oklahoma City plant with 100 H. P. Clarks

13,300 h.p
at Oklaho



200 H. P. Clark "Super 2" twins at Oklahoma City

Sixteen Clark 200s and three Clark 100 H. P. "Super 2s"

CLARK

GAS ENGINES &

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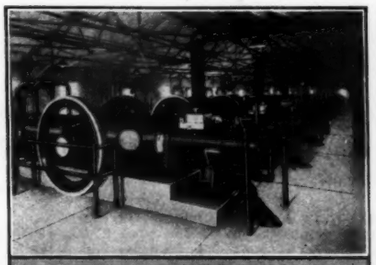
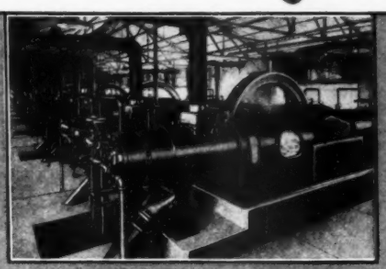
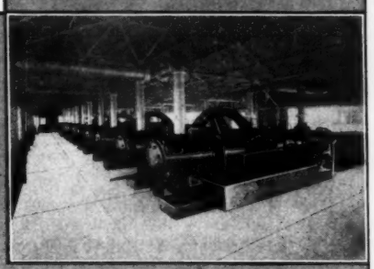


Clark 100 H. P. "Super 2s" at Oklahoma City



Fifteen Clark 200 H. P. "Super 2s" and one 100 H. P.



Clark 200 H. P. Twin "Super 2s" in Oklahoma City Plant

The amazing Oklahoma City oil field is featured by enormous potential production, extremely high pressures, deep holes, modern methods — and CLARK Engines.

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CLARK

COMPRESSORS

Gas Companies Are Most Active in East

Calhoun County, West Virginia, Had Best Completions During the Week. Total New Oil Production Is Small

By Staff Correspondent

PITTSBURGH, Pa., Feb. 23.—During the past week, interest in the lower eastern fields centered in the five wells completed in Calhoun County, West Virginia. Two of them were fair gas wells, and the remaining three but medium wells. In this county and in Center and Sherman districts, there is considerable drilling for gas. At present, there are eight wells drilling, three rigs standing, one rigging up to drill, material being hauled in for three others, and locations being cleared for another three. The activity dates from the latter part of last summer with the completion of two fair gas wells.

The total of the lower eastern fields was 24 completions, 15 gas wells, but 2 dry holes, and 7 oil producers with an initial production of 103 bbls. West Virginia set the lead with one fair oil well, and several fair gas wells.

Completions in southeast Ohio were few and small, and work is progressing slowly. Apart from the shallow sands in Medina County, and two tests in other sections which give promise, little was accomplished. In Fairfield County, the Hopewell Fuel Gas Co. and others completed a test on the O. O. Holiday farm in the southwest quarter of Section 14, Walnut Township. It was drilled in the Lime sand at 1,977 feet and is showing for 5 to 10 bbls. The other test was in the southwest quarter of Section 15, Pike County, Perry Township, and was completed by Bell and Shaw on the J. H. Stanberry farm. It reached the Clinton sand at a depth of 3,375 feet and is showing for 5 bbls. a day with 200,000 feet of gas a day, natural. The well will be shot early this week.

In Medina County, E. R. Edson & Son Co. added to their string of good wells in the Bueel and Cow Run sands No. 11 on the M. A. and Eva Franks farm, Lot 20, Section 16, Chatham Township. It went to 460 feet and produced 20 bbls. the first day after shot. In the same lot and section, the Preston Oil Co. completed a second well on the Ira Cleveland farm at a depth of 465 feet. It made 15 bbls. in the first 24 hours after shot.

In Athens County, the Grass Run Oil & Gas Co. completed a test on the P. R. Devore farm near Carbondale, Section 23, Waterlow Township. It is good for a 1-bbl. pumper after being shot in the Berea grit at a depth of 1,070 feet.

WEST VIRGINIA

The preponderance of drilling in West Virginia still continues in the gas areas and with few oil completions. Gas is still surplus in the eastern markets but chiefly so on account of the general depression as there is an added outlet.

A fair well was completed among the three oil producers completed this week. On the waters of Sheeps Run, Grant district, Ritchie County, the Daniel O'Day estate completed No. 4 on the Biddie Deems farm in the Salt sand and it filled up 800 feet in the 8-inch casing and gives promise of being a 50-bbl. well. In Clay district, Monongalia County, the Chartiers Oil Co. completed a test on the J. K. Wilson farm in the Fourth sand. It is showing for a 5-bbl. pumper.

In Tyler County, and on the waters of Big Sandy Creek, Shrader, Burkley and McKay completed a test on the P. R. Wright farm in McElroy district. It was drilled in the Big Injun sand at a depth of 1,944 feet and is making 2 bbls. a day with 75,000 feet of gas.

Gas Wells

West Virginia continues to bring in fair gas wells. The largest during the past week was the No. 30 of Godfrey L. Cabot on the Federal Coal Co. tract in Sherman district, Boone County. It is good for over 4,500,000 feet a day from the Maxon sand at 2,316 feet. This is in well drilled territory.

In Calhoun County, there were five completions in Center district. On Leading Creek, A. H. Jackson completed a test on the Lloyd Louden farm in the Maxon sand and which is showing for 1,000,000 feet a day. On the waters of Yellow Creek, W. H. Bickel drilled No. 3 on the Bennett heirs farm in the Injun sand which is good for 500,000 feet a day. A. H. Jackson drilled a test on the F. S. Means farm in the Maxon sand at a depth of 1,735 feet. It will make a fair gas well natural. F. F. McIntosh drilled a test on the Clinton Shock lease to 2,215 feet and in the Injun sand. It is also a gas well. On the John D. Collins farm, W. H. Bickel completed No. 3 in the Injun sand at 2,072 feet and it will also make a fair gas well without shot.

In Cabell County, the United Fuel Gas Co. completed their No. 4,310 on the W. E. Bee farm, Barboursville district, in the Brown shale at 3,192 feet. It is a gas well. In Kanawha County, there were two completions. The larger was No. 14 of the Ten Mile Oil & Gas Co. on the H. C. Dickinson farm in Malden district. It reached the pay in the Salt sand and is showing for over 1,500,000 feet a day. In the same district, the United Fuel Gas Co. completed their No. 4,278 on the Laura M. Ray farm in the Weir sand at 2,165 feet. It will make a small gas well.

In Lewis County, the McCall Drilling Co. drilled their test on the C. C. Dennison farm, reported last week, slightly deeper in the Fifth sand to 2,575 feet and it is a small gasser. This well is located on the waters of West Fork River, Court House district. In Marshall County, Frye and McCracken completed a test on the Harvey Knight farm in Webster district. It is a gas well at a depth of 3,003 feet.

In Monongalia County, the Manufacturers Light & Heat Co. completed their No. 2,797 on the M. J. Garrison farm in Battelle district. It was drilled in the Bayard sand at a depth of 3,439 feet and will make a small gas well. In Roane County, the only dry hole of the week was found. It was the test on the Central States Gas Co. and the Alexander White farm in Geary district and drilled to a depth of 1,551 feet in the Maxon sand.

In Wayne County, the Wayne United Gas Co. completed No. 48 on their own property in Lincoln district at 1,449 feet in the Big Lime sand. It is a small gasser. In Wetzel County, the Manufacturers Light & Heat Co. is drilling their No. 3,465 on the C. and B. Freeland farm and have reached 3,465 feet. The Gordon sand lay at 2,945-3,000 feet and a good flow of gas was found at 2,992 feet. The Fourth sand was between 3,028-40 feet and a small flow of gas was found at 3,032 feet. If nothing is found in the deeper sands, this test will be completed as a good gas well in the Gordon sand.

Drilling in West Virginia

Among the new operations, R. H. Adkins and others have made a location for a test on the B. L. Perry farm in McComas district. In Sheridan district, Lincoln County, the Martin Gas Co. has made a location for a second test on the Elisha Bias heirs farm. In Chapmansville district, Logan County, the Big Creek Gas Co. has made a location to drill a test on the J. D. Ball farm. In Washington district, Boone County, the Riverhead Gas Co. has made a location for No. 9 on the William R. Nelson heirs lease.

In McComas district, Cabell County, the Monickle Gas Co. is drilling at 2,360 feet in a test on the J. W. Morrison farm, and has reached 1,600 feet in a test on the Samuel Gothard farm. G. T. Ray is down to 1,430 feet in a test on the C. E. Gothard farm, same district. In Guyandot district, C. C. Wolfe has a second well on the Ben Lomond Land Co. down to 1,080 feet and the Larner Gas Co. has spudded in and started drilling its No. 111 on the L. A. Williams farm. In Grant district, the same company has a rig standing for a second well on the A. A. Swann farm, and the Harshbarger Oil & Gas Co. is rigged up for a second test on the J. A. and Oscar Conner farm. W. H. Kirtley & Co. is drilling on the William Sunderland farm and is down to 700 feet. In Barboursville district, Ortman and Shipe have reached 1,900 feet in a test on the John Childers farm, and Wilson and Mowery have a rig standing for a second well on the A. L. Baumgardner farm.

In Jackson County, J. H. Starr and others are at a depth of 4,006 feet in a test on the J. H. Starr farm in Grant district. In Washington district, the Pine Knot Oil Co. is drilling at 1,150 feet in a test on the J. T. Phillips farm. In Ravenwood district, the Heck Oil Co. is hauling in materials for a second well on the William Boggess farm, and a third well on the B. A. Shaffer farm. In Union district, the same company has a fishing job in a test on the Andrew L. Click farm at a depth of 1,740 feet.

In Tyler County, Berkley and Shrader are down to 1,945 feet in a test on the William Sandy farm in McElroy district. In the same district, the Manufacturers Light & Heat Co. are at 800 feet in its No. 3,469 on the A. E. Lemasters farm, and a local syndicate has reached 415 feet in a test on the M. V. B. George farm.

In Wayne County, the Wayne United Gas Co. has No. 40 drilling at 1,720 feet on its own property and has made two more locations in addition to the completion of this week. All this work is in Lincoln district. In the same district, the Owens Bottle Co. is in the sand in a test on the W. R. Parsley farm, and has made a location for a test on the T. A. Copley farm. In But-

(Continued on Page 84)

NEW KENTUCKY POOL DISCOVERED NEAR LEGRANDE POOL, HART COUNTY

By George A. Whitney
Staff Correspondent Kentucky Fields

HORSE CAVE, Ky., Feb. 23.—The latest sensational strike of oil in the Hart County, Kentucky, Field, and far in advance of production, brings forth what looks like another pool similar to the Legrande Pool, that caused so much excitement in September. The new well was drilled by Clarence Bundy and others on the Eli Bradley farm, northwest of the Legrande Pool and midway between Munfordville, the county seat and the hamlet of Forestville, approximately 4 miles southwest of Munfordville, in what is known as the Logsdon Valley, on the north side of the Green River about one-half mile. Oil was struck at a total depth of 858 feet, and gushed forth when the pay was tapped to the surprise of the owners, and is estimated as a 500-bbl. or better producer, but initially showed close around 1,000 bbls. It appears to be a separate pool from the rich Legrande Pool, and will bring about a large amount of development work as soon as weather conditions are such that material can be moved to new locations. The well shows a much thicker vein of black shale than does the wells in the Legrande Pool, and may develop into a larger and more productive area. The new well is reported about 8 miles northwest of Horse Cave, and will be a great help to Munfordville.

Hart County Wells

Outside of the big well mentioned the Wood-Snyder Oil Co. drilled in a second well on the Mrs. Myrtle Richardson farm, in the Legrande Pool of Hart County, estimated at better than 250 bbls. initial. Courtney Conns' test on the Charles Bagley farm, south of Green River, is reported with a volume of 2,500,000 feet of gas.

Carpenter and others' No. 2 on the south end of the T. B. Burd heirs in the north portion of the Legrande Pool, developed into a duster. Dr. S. J. Simon's test on the Fannie Crenshaw farm, near Pascal, was a dry hole.

Unknown parties' No. 1 on the P. Crouhan farm, northwest of Cub Run, is reported showing for a light producer, while No. 2, same farm, was dry.

Unknown parties' No. 1 I. Peyton farm, northeast of Horse Cave, is a gas well, as is the test on the B. Ray farm, south of the town of Rio.

Dry holes drilled by unknown parties in various areas of Hart County are: No. 1 C. Patterson farm, north of the hamlet of Rowells; No. 1 Waddle farm, northwest of Hinesdale; No. 1 C. Kinney farm, northeast of Euclid; No. 1 King heirs farm, northwest of Hardyville; No. 1 J. J. Harper farm, south of Rowells; No. 1 Joe Thompson farm, southwest of Windsap. Unknown parties also drilled a dry hole in No. 1 Miller farm, northwest of the Bagby gas well.

Barren County Wells

In the northern part of Barren County, just south of Hart County, the Cumberland Petroleum Co.'s No. 1 W. S. Terry farm, estimated with 500,000 feet of gas.

Calvert, Watts and others' No. 1 on the D. S. Edwards estate, south of the Sturgeon farm, is reported with a gas volume of 2,750,000 feet.

Vickers & White's No. 1 Mrs. S. Edwards farm struck gas in the Stray sand, 100 feet above the shale, and also had a good gas volume in the Beaver sand at 585 feet, the well reported showing for 1,500,000 feet.

Norris & Davis have a nice gas well in No. 1 G. A. Walton farm, and unknown parties have gas wells on the Barl Wilcoxon and West Sparks farms.

Unknown parties' second test on the T. A. Ennis farm, in Metcal County, is a fair gas producer.

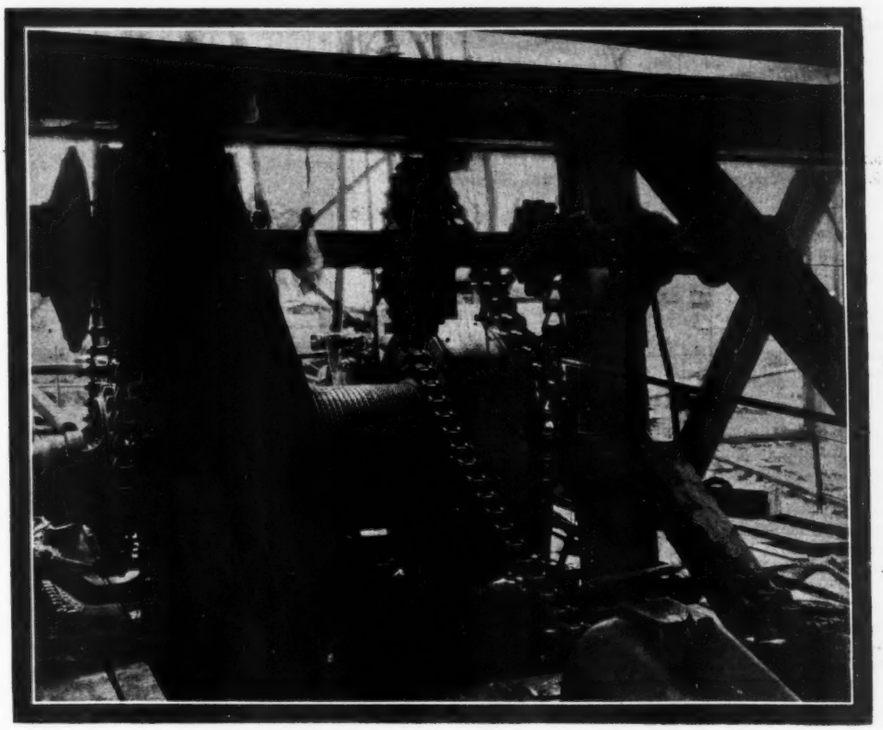
Cameron, Thompson and others' No. 1 Nina Wilhite farm, in the Calhoun Field of McLean County, produced 25 bbls. initial in the Jones sand at a total depth of 1,285 feet.

In Ohio County, H. C. Smith and others' No. 2 on the Floyd Keown farm, is reported with a gas volume of 500,000 feet in the Stray sand. Same parties are drilling No. 1 Frank White farm, same area. Jenkins and others are drilling No. 1 John Bellamy farm. Kentucky Natural Gas Co.'s No. 5 J. T. Griffith farm, which contains 225 acres, is a gas producer and No. 6, same farm, is drilling.

In the Pellville Field of Hancock County, Hupp, Duff and others' No. 2 Elic Jackson farm, produced 10 bbls. D. T. Bolling and others' No. 1 Richard heirs farm, pumped 10 bbls. initial, while Taylor & Ewell's No. 1 Wes Burke farm is a nice gas well, 1,000 feet from the north line and 200 feet from the east line of the farm.

REX CHABELCO

DEEPWELL—THE GREATEST CHAIN THAT EVER HIT THE OIL FIELDS



13,000 FEET AND STILL LOWERING THE COST PER FOOT OF HOLE . . . . . .

On Rallen No. 1, Oklahoma City, last fall, a set of Rex Deepwell Chabelco Chains had drilled 13,000 feet and was still lowering the cost of chain per foot of hole—as the driller put it, still going strong.• Still going strong meant that: The new alloy pins were wearing, and not wearing out. Neither were they snapping off their heads under the impact of full load. Scientific heat-treating had developed smooth, hard surfaces around tough insides. • Nor were the sidebars backing off the bushing—the hydraulic force fit connects with a nicety that holds them on. • This chain had not pounded itself to pieces because weight is accurately determined in relation to operating load and speed. • Meanwhile, these chains were lowering the cost of chain per foot of hole with every revolution of the sprockets. Every hour they were piling up a record of extra efficiency and extra profit that starts the minute any chain goes beyond the 10,000-foot mark in the tough drilling under heavy loads of Greater Seminole, Oklahoma City, and the hard rocks of the West Pacific Coast. The greatest chain that ever hit the oil fields did not just happen—it was engineered—steadily improved by invention from its famous forebears, the original Rex Chabelco 1030 and 1240.

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CHAIN BELT COMPANY

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Personal Paragraphs About Oil Men

H. H. Fuller, bulk sales manager of the Sinclair Consolidated Oil Corporation, is now on a prolonged visit to the South.

* * *

J. Howard Pew, president of the Sun Oil Company, has left the main offices at Philadelphia, Pa., on a short vacation trip.

* * *

C. G. Sheffield, vice president of the Standard Oil Company of New Jersey, was a business visitor to Roanoke, Va., recently.

* * *

John A. Fryer, vice president of the Cardinal Oil Company, Tulsa, was called to Whitewater, Wis., by the sudden death of his father, John H. Fryer.

* * *

John Mattox, with the Simms Oil Company at San Angelo, Tex., is spending a vacation fishing at Corpus Christi, Tex., and visiting Monterrey, Mexico.

* * *

Russell Owen, of the Casper, Wyo., offices of the United States Geological Survey, is spending a short vacation with friends and relatives in Chicago and Detroit.

* * *

Francis P. Smith, Jr., of the Union Oil Company, was re-elected treasurer of the Western Asphalt Association at a recent meeting held in Los Angeles, Calif.

* * *

L. F. Burke, land man for the Indian Territory Illuminating Oil Company, has been transferred from San Antonio to San Angelo, Tex., where he will become assistant to J. W. Rettig.

* * *

A. E. Rogers and A. A. Alton, chairman of the board of the National Securities Oil Company, Los Angeles, Calif., have been making an inspection trip through New Mexico and Texas fields.

* * *

C. E. Aikman, vice president of the Cardinal Oil Company which has production in Pecos County, Texas, has moved his headquarters from Oklahoma City to San Angelo and will live at the latter place.

* * *

James E. O'Neil, formerly president of Prairie Oil & Gas Company, is reported as being seriously ill at his new home in Cannes, France. He is believed to be suffering from heart trouble and rheumatism.

* * *

G. Legh-Jones, president of the Shell Oil Company of California, has returned to the company's offices in San Francisco, following a trip to the home office of the Royal Dutch interests at The Hague, Netherlands.

* * *

Sir John Cadman, G.C.M.G., chairman of the Anglo-Persian Oil Company, Ltd., has arrived at Abadan, Persia, for his tour of inspection of the company's oil fields and refineries. He was received in audience by the Shah of Persia at Bagdad.

* * *

Harold R. Deal, advertising manager of the Associated Oil Company, accompanied by J. M. Evans, manager of sales engineering and development, is making a tour of Pacific Coast territory but will return to the home office in San Francisco, Calif., within the next week or 10 days.

* * *

A. H. Hardendorf and O. J. Fredell, of Denver, Colo., officials of Fredell Construction Company, and H. W. Knupp of Amarillo, Tex., pipe line engineer, were in Casper, Wyo., recently figuring on a contract to lay the pipe line for the North Central Gas Company from Casper to Bridgeport, Neb. Mr. Fredell flew over the route of the line.

* * *

W. A. Myers, of Casper, Wyo., who brought in the first gas well on Hiawatha Dome, plans to accompany Sidney H. Keoughan to Germany on his next trip. Mr. Keoughan recently received a concession of 1,000,000 acres of land in the provinces of Oldenburg, Brunswick, and Mecklenburg, and has organized the North European Oil Company to develop it for oil.

John Stietz, Jr., bunker fuel oil salesman of the Standard Oil Company of New Jersey, is convalescing in the Mountainside Hospital, Montclair, N. J., following an abdominal operation.

* * *

Mr. and Mrs. William Morris, of Aruba, Dutch West Indies, announce the birth of a daughter on January 10. Mr. Morris was associated with the Standard Oil Company of Indiana, at Casper, Wyo.

Men of the Industry

Frank L. Chase

Frank L. Chase, vice president and operating manager of the Lone Star Gas Company, Dallas, Tex., was born in Bucyrus, Ohio; graduated from high school in Louisville, Ky., and after a year at Washington and Lee University, Lexington, Va., went to work as a telegraph operator for the old "Monon" Railroad, now the Chicago, Indianapolis & Louisville, eventually becoming traveling auditor. He entered the Massachusetts Institute of Technology, at the same time doing railroad work in Boston, and he completed the five-year civil engineering course in three years. Following his graduation in 1890 he became a construction engineer for the Union Pacific Railroad. Similar service for the Big Four Railroad, the Baltimore & Ohio and the New York Central followed. Then he was employed to look after the various public utilities in which a Wall Street banking house was interested. In 1906 he was placed in charge of eight gas and electric properties assembled by Calvin Bryce and General Samuel Thomas.

In 1917 Mr. Chase entered the service of the Lone Star Gas Company, first as general superintendent, then as manager of the gas department, then, in 1921, as operating manager. He was made president of the Community Natural Gas Company, which distributes gas in approximately 120 towns in Texas and Oklahoma served from pipe lines of the Lone Star system.

Mr. Chase married Miss Sarah Winchell Forbes, of Cincinnati, Ohio, in 1895. They have three daughters. Mr. Chase has served as vice president and director of the Natural Gas Association of America, vice president of the Natural Gasoline Association of America and is a managing director of the Natural Gas Department of the American Gas Association. He is a member of the Committee on Standardization of the American Petroleum Institute, the American Society of Civil Engineers, the Dallas Country Club, the University Club of Dallas and the Dallas Athletic Club. In 1929 he was elected president of the North Texas Technology Club.

Edmund Jussen, Jr., of the Union Oil Company's field department, is celebrating the arrival of a new baby born in Los Angeles, Calif.

* * *

John B. DeMaria, who resigned as president of the Italo Oil Company, was re-elected following a directors meeting held at San Francisco, Calif.

* * *

R. A. Rowlands, with the Standard Oil Company of Indiana refineries at Aruba, Dutch West Indies, plans to return to Casper, Wyo., about March 1.

* * *

J. W. McIntire, vice president and general manager in Casper, Wyo., for the New York Oil Company, has returned to Casper from a business trip to eastern cities.

* * *

Morie Walters, scout for Southern Crude Oil Purchasing Company at Shreveport, La., has been transferred to the new East Texas territory with headquarters at Tyler.

* * *

Charles L. Suhr, president of the Pennzoil Company, Oil City, Pa., is now on a western trip which will take him away from the company's headquarters for two months.

* * *

J. A. Jenkins, president of the Jenkins & Scott Oil Company, Wichita, Kans., has been spending some time in the East Texas district watching developments and also taking part in the activities.

* * *

P. G. A. Smith, manager of the advertising department of the Anglo-American Oil Company, Ltd., together with his colleague, D. S. Paul, have returned to England from a visit to the United States.

* * *

Y. A. Land, attorney for The Texas Company and Texas Production Company, with Denver, Colo., headquarters, is confined to his home in Denver with a compound fracture of both legs caused by a fall.

* * *

W. E. Dunlap has resigned as vice president in charge of production for the Richfield Oil Company of California to become executive director of the Independent Producers Association of California, which maintains offices in Los Angeles.

* * *

Charles Woodmanssee is back in Southwest Texas after a two years' absence in which he visited 23 countries, spending the latter part of that time in Australia. He is arranging to do some operating in Southwest Texas with headquarters at San Antonio.

* * *

H. O. Forrest recently resigned as associate professor of chemical engineering and director of the research laboratory of applied chemistry at the Massachusetts Institute of Technology, to join the staff of the M. W. Kellogg Company, Jersey City, N. J.

* * *

T. G. Travis has succeeded J. F. Jeffries as district sales manager for the Standard Oil Company of California in the Los Angeles district. Mr. Jeffries was recently promoted to be assistant general sales manager of the company with offices in San Francisco.

* * *

As successor to J. H. Kruger, who has been retired on a pension after 42 years of service, the Magnolia Petroleum Company has appointed W. S. Kotch as Arkansas division manager. Mr. Kotch entered the oil business at Houston, Tex., and was transferred to the Arkansas division in 1916. He has served as chief clerk, Little Rock agent and assistant state manager for Magnolia.

* * *

Dr. D. S. Villars, assistant professor in physical chemistry at the University of Minnesota during the school year 1929-30, who later spent five months working in the research laboratory of the General Electric Company in Schenectady, N. Y., has been appointed physical chemist in the research laboratory of the Standard Oil Company of Indiana at Whiting, Ind.

Above: Wiggins Pontoon Floating Roofs on 117-ft. diameter terminal tanks at Port Tampa, Fla. Right: Standing storage tanks equipped with Wiggins Breather Roofs at Prairie Pipe Line Company Station, Wilmington, Illinois.

"Built-in" fire protection—that costs you nothing » »

WHO would not rather have a fireproof house than an inflammable one—even though it were located next door to the fire department?

Oil companies have found this an effective and economical principle for tanks. Wiggins Roofs *prevent* fires from starting. Their fire protection is "built in"; they do not rely on costly accessory systems.

Extended tests and service records have proved that Wiggins Roofs prevent fire, whether from lightning or exposure; yet this fire protection costs you nothing because these roofs pay for themselves through evaporation savings.

The Wiggins Floating Roof prevents fire hazard by blanketing the oil surface at all levels, except for an 8-inch ring at the tank shell. This ring is closed by an effective seal, which prevents escape of inflammable vapor. There is no vapor space under the roof where inflammable vapors might form.

With the Wiggins Breather Roof (for standing storage) no vapor is vented out nor air drawn in. The roof flexes up and down to take care of thermal expansion. The vapor space under this roof is saturated at all times. Even when the Breather is cooled rapidly, no air is drawn in through the vents to thin the vapor and form a highly combustible mixture.

Write our nearest office for quotations on re-roofing your existing tanks or on new tanks completely equipped with Wiggins Roofs.

STOP FIRE AND EVAPORATION —CUT CORROSION LOSSES

CHICAGO BRIDGE & IRON WORKS

Dallas	3341 Magnolia Bldg.	Chicago	2128 Old Colony Bldg.	Philadelphia	2615-1616 Walnut Street Bldg.
Houston	1119 Electric Bldg.	Detroit	1514 Lafayette Bldg.	Boston	1517 Consolidated Gas Bldg.
Tulsa	2406 Exchange Bank Bldg.	Cleveland	2204 Midland Bank Bldg.	San Francisco	1054 Rialto Bldg.
Birmingham	1536 Fiftieth St., N.	New York	3147 Hudson Terminal Bldg.	Seattle	4523 Smith Tower

WIGGINS ROOFS

OGJ 2-26 Gray

Natural Gas Industry Developments

OKLAHOMA NATURAL GAS FILES RATE SUIT BOND

With a $100,000 bond posted in Federal Court, the Oklahoma Natural Gas Corp. is preparing to take its fight against a temporary rate reduction in Oklahoma cities before Edgar S. Vaught, Federal judge, on an application for a permanent injunction, to be heard February 27.

On Judge Vaught's ruling will depend the rate to be charged in February gas bills of the company. The corporation commission has ordered a temporary reduction from 35 cents to 25 cents per 1,000 feet in gate rates, equivalent to a burner tip rate cut from 57 cents to 47 cents.

If a permanent injunction is denied by the Federal Court, the February rate will be cut to comply with the corporation commission's temporary order, unless appeal is taken to a higher Federal Court.

The company's object in seeking a Federal Court order is to permit introduction of rate evidence before the corporation commission, W. P. Canavan, company vice president, said.

"The $100,000 bond posted with the Federal Court will cover the 10-day period until the hearing February 27," Mr. Canavan said. "If a permanent injunction is granted, the company will be ready to post a much larger bond to cover the period until the corporation commission can hear the case and make a permanent rate order. Thus, the customers would be fully protected by the bonds, if a rate reduction were ordered."

COLUMBIA GAS REPORTS RECENT ACQUISITIONS

Summing up the major acquisitions of the year, Philip G. Gossler, president of the Columbia Gas & Electric Corp., in a letter to the stockholders says:

"Late in the year 1930 the corporation purchased all of the outstanding stock of Howe Oil & Gas Co., Northern Gas Co., Northern Industrial Gas Co. and Bridge Gas Co., holding various pipe line rights of way, industrial contracts, gas production and unoperated leasehold acreage in the Kentucky fields. In connection with this acquisition a majority of the stock of American Fuel & Power Co. was purchased. This latter company is a holding company which, through subsidiaries, also owns gas production and unoperated leasehold acreage in the Kentucky fields. Two of the subsidiaries of American Fuel & Power Co., namely, Inland Gas Corp. and Kentucky Fuel Gas Corp., had been previously financed principally through sales of bonds and notes to the public. Earnings from the operations of these companies proved to be insufficient to cover the interest charges on these obligations and defaults occurred on interest payments of Kentucky Fuel Gas Corp. due December 1, 1930, and of Inland Gas Corporation, due February 1, 1931. Receivers have been appointed for both of these companies. On January 1, 1931, the holding company, American Fuel & Power Co., defaulted on the interest payment on its notes but up to the present time no petition for receivership has been made. Protective committees have been organized representing the holders of these defaulted issues. In view of the fact that receivers are in control of these operations, the future financial and operating plans of these three companies depend on the outcome of these receiverships, and their financial reports are not consolidated with Columbia system subsidiaries.

"Deliveries of natural gas for use by the distributing companies serving Washington, D. C., and York, Pa., have commenced since the first of the year in accordance with contracts."

SOUTHERN UNION GAS ISSUE

Offering will be made shortly of an issue of $500,000 two-year 6 per cent gold notes of the Southern Union Gas Co. which through its subsidiaries and allied companies furnishes public utility services to 56 cities and towns in Texas, Oklahoma, New Mexico, Arkansas and Colorado. Proceeds of the issue will be used to reimburse the company for expenditures already made for construction, for working capital and for other corporate purposes.

TAX ON NATURAL GAS IS PROPOSED IN UTAH

DENVER, Colo., Feb. 21.—The Utah legislature is considering a tax on natural gas as an aid to the state school fund. The bill was introduced by Representative S. M. Jorgensen, chairman of the committee on education. It levies a tax of 1 cent per 1,000 feet on all natural gas sold in the State. If the bill is enacted, the burden will fall largely on the populous centers of the northern part of the State, where the bulk of the gas coming into the State is consumed. The gas company would pass the tax on to the consumers, since taxes is one of the items allowed by the public utilities act to be charged to the consumer.

The bill would require that every distributor of natural gas submit a sworn statement to the secretary of state each month showing the number of feet sold during the preceding month as a basis for determining the amount of tax. The tax would be due on or before that date.

All revenues collected would be placed to the credit of the state district school equalization fund, the creation of which is proposed by the bill now pending in the legislature.

It is further provided that if any distributor refuses or fails to pay his tax by the fifteenth of the month, it would become delinquent on the first day of the succeeding month. The penalty for delinquency would be 25 per cent of the tax, and the amount of the tax, plus the penalty, would be subject to interest at the rate of 12 per cent per annum until paid.

The attorney general would be obligated to bring action immediately after any tax became delinquent for the collection of the tax, penalty and interest. In addition, any gas distributor violating any of the provisions of the act would be deemed guilty of a misdemeanor and subject, upon conviction, to a fine of not more than $1,000 or to imprisonment in the county jail for not more than six months, or both.

CALIFORNIA CONTRACT

LOS ANGELES, Calif., Feb. 21.—Contract has been signed between Pacific Gas & Electric Co. and the Dudley Ridge Oil Co. whereby the former engages to take the natural gas output from the Dudley Ridge Field in San Joaquin Valley. Total potential gas production of the Dudley Ridge Field at present is set at 20,000,000 feet a day.

NEW YORK MERGER

The Pennsylvania Fuel Supply Co. has applied to the Public Service Commission of New York for permission to transfer its natural gas distribution system in Olean and Allegany, Cattaragus County, to the Keystone Gas Co., a New York corporation, which joins in the petition. Both companies are subsidiaries of the Columbia Gas & Electric Corp., which acquired the Keystone company by an exchange of stock in May, 1928.

CALIFORNIA GAS OUTPUT SHOWED DECLINE IN 1930

Production of natural gas in California for the year 1930 amounted to 418,686,426,000 feet, James E. McCaffey, engineer with the state gas and electric division, reports. This compares with 557,634,175,000 feet produced in 1929 and shows a decline of approximately 25 per cent due chiefly to the oil conservation program.

Utilization of gas in 1930 amounted to 57 per cent of the total produced or 238,099,826,000 feet. This compares with utilization of 55 per cent for 1929. The wastage in 1930 was reduced to 180,586,000,000 feet, or 43 per cent compared to a wastage of 248,476,601,000 feet or 45 per cent in 1929.

Total gas produced in the State in the period from 1920 to 1930 inclusive amounted to 2,936,639,455,000 feet. Of this amount 1,818,860,530,000 feet or 62 per cent was utilized, while 1,117,768,825 or 38 per cent was wasted.

Daily wastage in the State at present is averaging approximately 500,000,000 feet out of a total daily production of approximately 1,500,000,000 feet.

Kettleman Hills, with a daily wastage of about 300,000,000 feet, is the chief offender. Plans are to reduce this to about 100,000,000 feet daily by September of this year. Output of gas at Kettleman in 1930 was 129,694,786,000 feet, of which 32,464,000,000 feet was utilized and 97,230,477,000 feet was wasted.

Since the field was discovered in October, 1928, it has produced 176,469,593,000 feet, of which 43,920,781,000, or 25 per cent, has been utilized and 132,548,812,000 feet, or 75 per cent, has been wasted.

LONG-DISTANT TRANSMISSION

In view of the progress of long-distance gas transmission in the United States, the Fern-Gas project in Germany is of interest. The city of Magdeburg (51 per cent control) and the Kontinentale Gas Gesellschaft (49 per cent control) now supply gas to communes and district councils all the way to Leipzig, passing through Zerbst and Dessau and near the manufacturing district of Bitterfeld, and also westward from Dessau through the Harz region to Ilsenburg. As soon as possible another main line of pipes will go north to Wittenberge, and in due course these lines will give gas to hundreds of other towns and villages. The works, equipped with every possible labor-saving contrivance, are designed to deal with 1,000 tons of coal daily. Magdeburg is near the vast deposits of brown coal, but hard British coal is being used since gas for heating and lighting on the large scale cannot yet profitably be obtained from lignite. One gas holder of 100,000 cubic meters and a reservoir for 3,500 tons of tar are already in operation. The initial gas pressure at Magdeburg is 10 atmospheres, and it is calculated that when the gas reaches the end of the line at Leipzig the pressure will be 3 atmospheres.

ALBERTA GEOLOGICAL WORK

CHATHAM, Ontario, Feb. 21.—A report compiled by the geological committee of the Alberta Oil and Gas Association, headed by Dr. T. B. Williams, shows that in 1930 some eight companies active in Alberta had organized staffs of geologists, with a resident personnel of 34. During the year operators in Alberta drilled 213,232 feet of hole in search of oil and gas; in addition to which structure tests accounted for 68,815 feet of hole.

TO BUY MISSOURI COMPANY

The Ozark Distributing Co. has filed an application with the Missouri Public Service Commission to acquire the franchises, property and assets of the Urban Service Co. which has natural gas franchises in Carrollton, Concordia, Sweet Springs, Hardin, Norborne and Glasgow, Mo.

GREATER CONSUMPTION PREDICTED DURING 1931

CHICAGO, Feb. 21.—New records in the consumption of natural gas in the United States will be set in 1931, delegates attending the fifth Mid-West Regional Gas Conference were told here.

Speakers pointed out that the extension of pipe line systems last year providing thousands of towns and cities with natural gas for the first time means an extensive increase in these communities in 1931, while the completion of several large projects now under construction this year will combine to make the send-out of natural gas the greatest in the country's history.

More than 300 delegates representing some of the largest utility companies in the Middle West attended the sessions.

C. A. Nash of the United Power & Light Co. of Davenport, Iowa, presided at the opening session. Problems of changing over consumer equipment to natural gas, selling natural gas to communities and building great sales after its introduction occupied prominent places on the program.

Discussing "What's Ahead for the Gas Industry," R. W. Gallagher, president of the East Ohio Gas Co., of Cleveland, outlined the possibilities of future development, in the light of recent economic developments in the United States. Another speaker at the morning session was B. J. Denman, general manager of the United Light & Power Co., of Chicago, who discussed the significance of natural gas to the social, economic, commercial and industrial life of cities in the Middle West who will soon be regular users of natural gas. The difficulties encountered in changing over a big city to natural gas distribution and their solution were outlined by F. J. Gunther of the Iowa-Nebraksa Light & Power Co. of Lincoln, Neb.

UNITED CARBON CO.

United Carbon Co. and subsidiaries report for year ended December 31, 1930, net profit of $704,600 after depreciation, depletion, interest, taxes, inventory write-down, etc., equivalent, after dividends paid on 7 per cent participating preferred stock, to $1.43 a share on 397,885 no-par shares of common stock, including 36,300 shares held in treasury. This compares with net profit in 1929 of $1,314,555, equal, under the participating provisions of the shares, to $10.49 a share (par $100) on 27,055 shares of 7 per cent participating preferred stock and $2.62 a share on 393,073 common shares outstanding. Contract with Columbia Gas & Electric Corp., major deliveries on which will start November 1, 1931, contemplates the eventual sale of all the gas which United Carbon's properties in eastern Kentucky can produce.

"In spite of increased sales volume in 1930," Oscar Nelson, president, says, "reduced prices resulted in material decreases in net earnings from the carbon black department. During the year carbon black production exceeded shipments and inventories continued to increase. Consequently, the management materially curtailed production in 1930 in order to reduce the spread between output and demand."

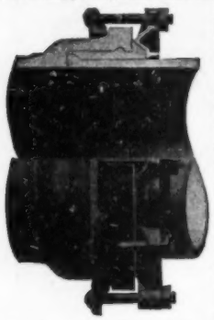
Snapped by The Journal's Staff Men in the Fields

1—C. I. Bassler, American Meter Company; H. M. Scanlon, pumper; and L. K. Butler, gas division, Union Oil Company, Venice, Calif. 2—R. L. Fortune, superintendent gasoline plant, Barnsdall Company of California, Elwood, Calif. 3—J. F. Justiss, tool pusher, H. L. Hunt, Inc., Shreveport, La. 4—T. W. Rhoads, petroleum engineer; and M. O. Boring, assistant production superintendent, Gulf Production Company, Fort Worth, Tex. 5—J. W. Dunworthy, superintendent; B. S. Anderson, machinist; and D. A. Vail, absorber operator, Pacific Western Gasoline plant crew, Ventura, Calif. 6—Allen Peairs, representative, Foster Wheeler Corporation, Dallas, Tex. 7—C. R. Wait, rig building contractor, El Dorado, Ark. 8—O. V. Mullins, drilling contractor; and Fred Taylor, tool pusher, H. L. Hunt, Inc., Shreveport, La. 9—Lee Housinger, pilot, Murray Tool & Supply Company; S. S. (Pete) Parker, sales manager, Doheny Stone Drill Company; and J. M. Murray, Murray Tool & Supply Company.

Oil Industry Equipment and Supplies

BELL AND SPIGOT CLAMP INTRODUCED BY DRESSER

The S. R. Dresser Manufacturing Co., Bradford, Pa., has announced a new bell and spigot repair clamp known as style 4½ horsepower. In this clamp a gasket of reverse wedge shape overlaps the caulking and insures a perfect seal whether the joint is straight or out of alignment. The clamp ring confines the gasket and regulates its compression. The manufacturer asserts that sufficient flexibility is provided by the resiliency of the gasket to permit movement without impairment of the utility of the clamp. The clamp is simple in design and light in weight, but has adequate strength at all points of stress. A descriptive folder is available from the Dresser company.



MOTOR IS DESIGNED FOR HAZARDOUS ATMOSPHERES

A combination of explosion resisting motor and switch for use in hazardous vapors has been placed on the market by the Master Electric Co. of Dayton, Ohio. Its widest application is on gasoline dispensing pumps. The switch is built into the motor frame as an integral part of the motor. The combined switch and motor carry the Underwriters' nameplate, assuring protection from explosion, and eliminate the hazard of extra wiring, piping, splicing, etc. This unit provides a compact and simplified construction, minimizing the danger of service trouble and reducing the assembly cost for the pump manufacturer.

Other features are: Bringing the motor leads out through the motor frame, which permits the removal of both end covers without disturbing the seal; moisture-proof construction, quiet operation, high starting torque, large overload capacity, and exceptionally sturdy bearing construction.

These motors are designed for either horizontal or vertical shaft operation and suitable for use wherever surrounding atmosphere may be inflammable. They can be purchased in sizes from one-eighth to one-third horsepower inclusive, repulsion-induction, polyphase and direct current, all of which are interchangeable as to external dimensions.

ROTARIANS HEAR MR. DAVIS

Merrill N. Davis, vice president and general sales manager of the S. R. Dresser Manufacturing Co., Bradford, Pa., was the speaker at a recent meeting of the Rotary Club of that city. Mr. Davis recounted briefly the 50 years of his company's life and stated that 1930 had been the most successful year in the company's history. He said a research and development engineering department had been organized to study field requirements and the design and development of new appliances and to improve the company's production methods and equipment where possible. He said a greatly expanded business in 1931 was forecast.

A bulletin telling about the Hercules Midget hand truck for moving boxes, barrels, cartons, etc., is being sent out by the Illinois Iron & Bolt Co., Carpentersville, Ill.

AMONG THE EQUIPMENT HOUSES

The Hercules Supply Co. of Fort Worth, Tex., has opened a store in Kilgore, Tex., to serve the East Texas fields.

J. P. Coffman, general superintendent of the National Transit Pump & Machine Co., Oil City, Pa., was retired under the pension plan February 16 after 20 years' service.

Charles Carrington is now associated with Matt Berg in the Tractor-Truck Equipment Co. organization in Tulsa and will spend most of his time with the pipeliners.

The Resistcor Engineering Corp., Tulsa, has moved its office and warehouse to its new building at East Third Street and Frankfort Avenue.

The Wagner Electric Corp., St. Louis, Mo., has added several new fans to the Wagner 1931 line, and these are described in the new Wagner Bulletin 168.

Fifty-five representatives of the Barber-Greene Co. in the United States and Canada gathered at the company's plant in Aurora, Ill, recently for the annual sales conference. H. H. Barber and W. B. Greene, president and vice president, and other officers of the company outlined the policies and methods of the home plant.

A contract has been placed with the firm of Aug. Kloenne, Dortmund, Germany, through its French licensees covering a Kloenne waterless gas holder of approximately 3,500,000 cubic feet capacity for the city of Paris, France. This is the fifth Kloenne dry seal gas holder ordered in France since the license was granted.

Sales executives of the Worthington Pump & Machinery Corp. from throughout the United States had their three-day annual meeting in Harrison, N. J., recently. H. C. Beaver, formerly executive vice president of Rolls-Royce of America, was introduced as a new vice president. He will devote his efforts principally to the administration of the sales department. E. E. Yake was advanced to the office of vice president to direct manufacturing and engineering, as formerly.

NOTES ABOUT TRADE LITERATURE

A 16-page booklet from the Atlas Valve Co., 282 South Street, Newark, N. J., gives a complete description of the Campbell feed water regulator with illustrations.

The Gearench Manufacturing Co., 313 Hughes Street, Houston, Tex., has issued its catalog No. 31, covering tubing, pipe, chain, friction, carrying, back-up, make-up, rotary and casing tongs and pipe wrenches.

Milliken valves for handling gasoline, oil, water, steam, boiler blow-off, air, vacuum, gas, etc., are described in a bulletin being mailed by the American Car & Foundry Co., 30 Church Street, New York.

The Lincoln Electric Co., Cleveland, Ohio, has prepared a 20-page illustrated bulletin devoted to arc welding supplies, including electrodes, shields, holders, cables, and other accessories.

A contribution to greater power efficiency in the oil and gas industry is the 34-page handbook written by Hewitt A. Gehres, chief engineer of the Cooper-Bessemer Corp., Mt. Vernon, Ohio, and obtainable on request. The book explains in detail how to use and read an engine indicator on two and four-cycle gas engines, and on compressor cylinders, how to determine compression pressure, peak pressure, terminal pressure, back pressure, ignition timing, valve timing, mixture conditions, prematures and many other points.

Casing and tubing packers which, according to the manufacturer, "have not stuck yet," are discussed in a 12-page bulletin issued by the Pacific Oil Tool Co., Ltd., 4439 Santa Fe Avenue, Los Angeles, Calif.

An attractively printed 60 page booklet prepared by the Wilgus Manufacturing Co. and the Natural Gas Equipment Co., San Francisco and Los Angeles, and entitled "Pioneers in Gas Pressure Regulation," tells in interesting text and pictures the story of modern pressure regulators for every requirement.

Lukenweld, Inc., Coatesville, Pa., has prepared a 20-page bulletin on Lukenweld construction, which is described as "the fabricated product obtained by welding Lukens welding quality rolled steel according to insurance welding practice."

"Slip Ring Motors" is the subject of an eight-page bulletin issued by the Wagner Electric Corp., St. Louis, Mo. The bulletin discusses in detail the mechanical and electrical characteristics of slip ring motors.

OIL COUNTRIES SPECIALTIES HAS ANOTHER AIRPLANE

This shows the new Spartan five-place airplane purchased by the Oil Countries Specialties Manufacturing Co., Coffeyville, Kans., with a four-place Stinson owned by the same company. Rolly Inman, pilot, and W. P. Turner, president of Oil Countries Specialties Manufacturing Co., are seen. The Spartan is equipped with a Wasp, Jr. motor. It has a top speed of 142 miles per hour and cruising speed of 120 miles.

MEN KNOWN *in* THE EQUIPMENT FIELD

R. B. McColl

William C. Dickerman, chairman of the board of McIntosh & Seymour Corp. (American Locomotive Co. subsidiary), has announced the retirement of A. E. Ballin as president and director and the election of R. B. McColl to succeed him.

Mr. McColl was born 49 years ago in Kilmarnock, Scotland, where he attended the Kilmarnock Academy and the Science and Art College. After serving a special apprenticeship on the Glasgow & Southwestern Railway in Kilmarnock, he was employed by Robert Stephenson & Sons, locomotive builders, Darlington, England, as a draftsman. In 1905 he went to work for the Montreal Locomotive Works, Ltd., Montreal, Canada, serving consecutively as small work department foreman, small tool supervisor, general machine shop foreman, assistant superintendent, superintendent of works and works manager. In 1917 he was appointed manager of the munition department of the Eddystone Munition Co., where he remained until after the Armistice.

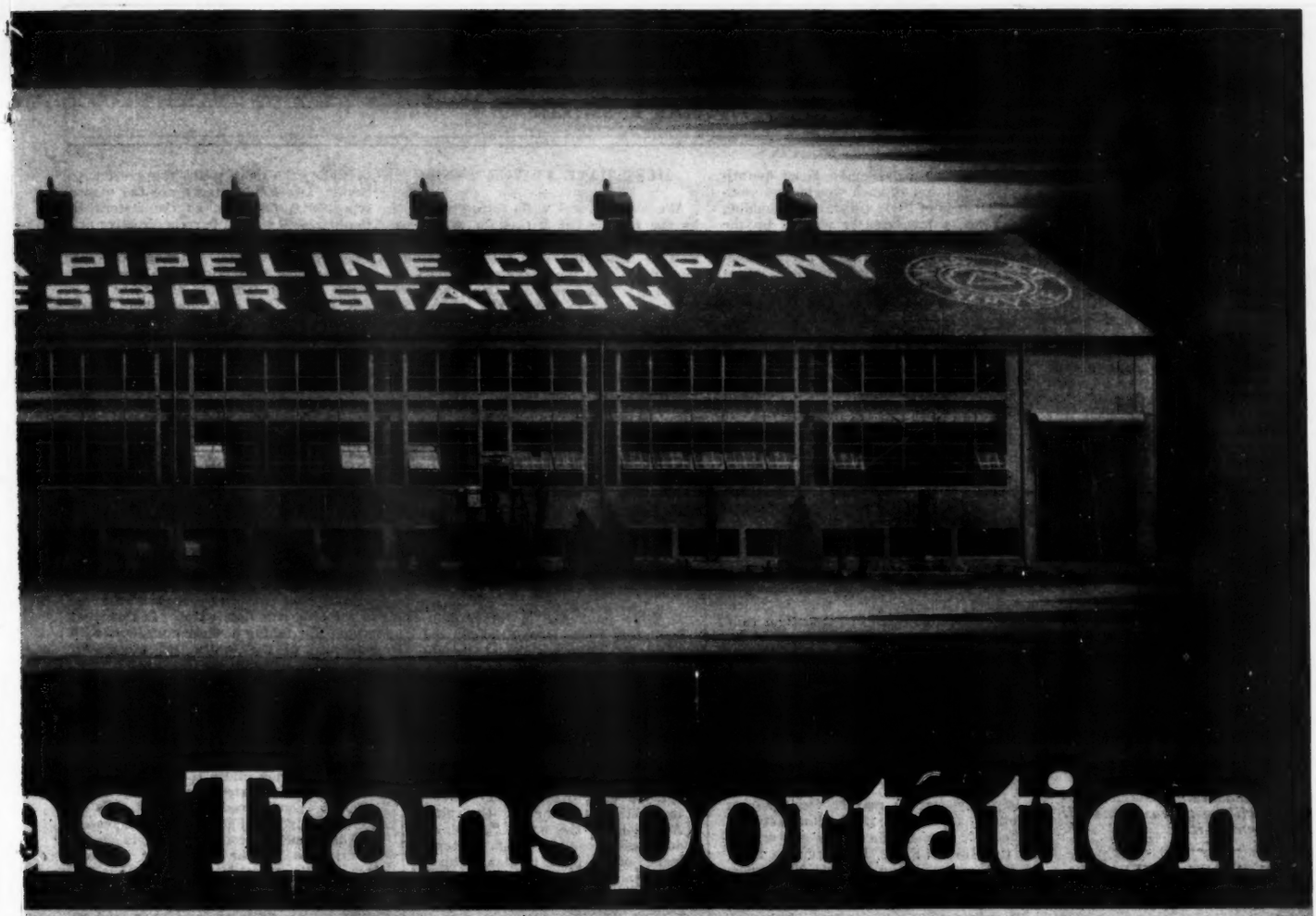
Returning to England, Mr. McColl became general manager of Armstrong Whitworth Co.'s locomotive department. Later, in addition, he was made general manager of the pneumatic tool department, gas and oil engine department, and also director of the works board of all Armstrong Whitworth Co. plants, which included shipbuilding and Diesel oil engines for marine work, etc.

In 1922 Mr. McColl was made assistant manager of the Schenectady plan of the American Locomotive Co. In 1925 he was appointed manager, which position he held until his present promotion.

Mr. McColl is a member of the Institute Mechanical Engineers, London, England. He is also a member of the Canadian Club of New York, Mohawk Club, Mohawk Golf Club, Schenectady Curling Club, president of Schenectady Bureau of Municipal Research and director of the Schenectady Chamber of Commerce.

DEVICE FOR REMOTE CONTROL

Neilan Co., Ltd., manufacturer of automatic control and regulating devices, is now marketing the new Neilan remote manual control system, consisting of a handwheel and a control pressure indicating dial, operating in conjunction with a special pilot valve, which may be used to operate remote valves throughout industrial plants. A 16-page bulletin, profusely illustrated, may be obtained from the company, 641-651 Santa Fe Avenue, Los Angeles, Calif.



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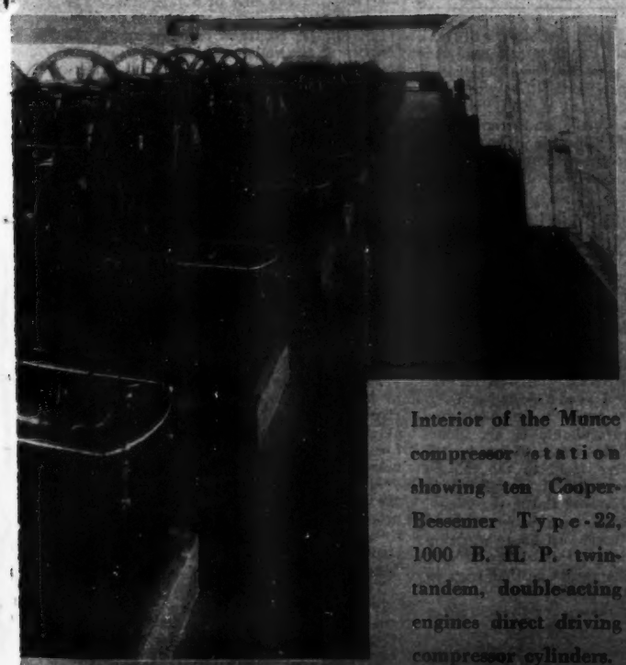

Interior of the Munce compressor station showing ten Cooper-Bessemer Type-22, 1000 B. H. P. twin-tandem, double-acting engines direct driving compressor cylinders.

Every feature of this giant compressor station is engineered for safe, low-cost and efficient operation. Accommodating 10,000 horsepower under one roof puts a weight of 1,430 tons of engines, 9,442 tons of concrete, 200 tons of structural steel, 35 tons of sheeting and roofing, 40 tons of cranes, and 50 tons of piping on the piling (if the soil is sandy.)

With this large investment in materials and the necessary labor, it is understandable why many of the country's finest natural gas compressor stations are Cooper-Bessemer powered.

The Cooper-Bessemer Corporation

Mt. Vernon, Ohio — Grove City, Pennsylvania
P. O. Box 1911, *Tulsa, Oklahoma* — 640 E. 61st St., *Los Angeles, California*
1313 Magnolia Bldg., *Dallas, Texas* — Suite No. 301, 25 W. 43rd St., *New York, N. Y.*

MER TYPE-22'S

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

MUD AS BLOWOUT PREVENTER

It is not clear to me why there is any need of mechanical blowout preventers if it is true, as is so often stated, that the circulating mud used in rotary drilling will itself prevent blowouts. I suppose the character of the mud has a good deal to do with it and in this connection I would like to ask how the driller is to know whether the mud made by the formations he drills through is of the right kind to prevent blowouts. And if the mud as it is made in drilling is not satisfactory, what should be done to it to make it satisfactory?—E. O. R.

Rotary mud of the right consistency may be depended upon to prevent blowouts except under abnormal conditions, but these abnormal conditions are encountered so frequently that the mechanical blowout preventer has proved its value. Blowout prevention appliances may be considered as emergency equipment which need not be resorted to save in cases where the drilling fluid fails to hold down gas. Blowouts will not occur, according to the findings of the drilling practice committee of the Southwestern district, American Petroleum Institute, where proper drilling fluid is used except when circulation is lost in a cavity or stopped by shale heaving into the hole or when such high pressures are encountered that the heaviest pumpable column of fluid will not hold back the gas.

The most effective way to prevent blowouts, the committee adds, is to circulate mud fluid of proper weight according to the depth of the hole to hold down the known pressure of the area or the pressure of the formation to be encountered as known by pressures existing in the same formations elsewhere in the country.

In some districts thick beds of clay and shale are drilled through and a sufficient quantity of good mud is made for the drilling of the well. In many other areas it is necessary to manufacture mud for the hole from clay. This practice is necessary in almost every field in West Texas. Some holes make large quantities of mud, but of such weight and quality that it is of little assistance in holding down heavy pressures or walling up the hole. In these cases it may be just as necessary that proper mud be manufactured for the hole as it is in areas where little mud is made from the formations in the hole.

There are differences in clays from which mud can be manufactured as to weight and purity. The best clay for manufacturing drilling mud (if different grades are available) is the clay that has the greatest weight per cubic foot when finely ground and perfectly dry, free from sand and voids. Ten and 12 per cent sand cannot be detected in some clays except in a laboratory test. Mud with a high sand content is objectionable on account of its abrasive effect on equipment and because that weight in mud made up by sand is not effective in holding down heavy pressures.

It is common knowledge that mud can be too plastic in drilling through gas horizons. Thick, plastic mud is much more susceptible to gas cutting than thin mud. When the condition arises where mud must be heavy to hold down gas and at the same time sufficiently fluid not to be affected unduly by the gas, use of admixtures must be resorted to, commonly referred to as "mud-heaviers." These admixtures are usually mixed with ordinary mud in the proportions required to maintain certain weights and remain sufficiently fluid.

In many cases it may be found advisable to use drilling fluid manufactured exclusively of such admixtures and water. In the Hobbs Field, Lea County, New Mexico, where pressures of 1,400 pounds are encountered at a depth of 2,800 feet, it has been decided advisable in some wells to resort to this practice. It is one way of "playing safe." The usual practice at Hobbs is to maintain circulating fluid weighing 14 to 15 pounds per gallon while drilling through the heavy gas horizons.

WIDENING BOTTOM OF THE HOLE

Have you any information regarding any boring tools used for a horizontal widening of the bottom of an oil well or do you know of any writings on the subject? This tool to be satisfactory would have to reach out horizontally and scoop out the rock over an area away from the well hole of 5 to 10 feet in diameter. Would it work in shale formation and could it be made part of a churn bit equipment?—A. P. M.

There has been on the market for years a reamer designed to enlarge the cavity at the bottom of a well. It is a steel bludgeon attached to the bottom of a shaft that extends from surface to the bottom of the hole. The bludgeon is hinged on the bottom of the shaft so that when the shaft is turned at the surface the bludgeon swings into a horizontal position owing to centrifugal force and breaks down the faces of the well where it strikes.

This equipment has been used with success, but if it is desired to enlarge the hole at the bottom of a well it is still considered good practice to shoot the formation with nitroglycerin.

Other ideas covering means of increasing the drainage area into a well have been suggested and we refer you to an article that appeared in the August 21, 1930, issue of The Oil and Gas Journal covering a suggested method of drilling five holes on a 40-acre lease with only one outlet hole. In this article mention is made of a new piece of equipment developed to drill horizontally when the bottom of the hole is reached.

MUST HAVE FEWER TANKS

We have several wells formerly served by the Prairie Oil & Gas Co. where we had a number of receiving tanks at each well to which the pipe line connections were made. We now have opportunity to secure new pipe line connections, but have been requested to reduce the number of receiving tanks at the wells to a minimum and will appreciate any suggestions you can make that will assist us in accomplishing this result.—D. J. S.

It has been noted that there were a large number of pipe line connections in this area formerly served by the Prairie Oil & Gas Co. owing to the fact that as a new well was finished the line was extended to it and in that way a rather intricate system of gathering lines with tank batteries was built up. It is desirable that the number of pipe line connections be limited and it is suggested that you might follow the practice that has been successfully used in California and described as follows by H. A. Brett in a paper presented before the Chicago meeting of the American Petroleum Institute, November 12, 1930:

"A new development in lease operations which has taken place during the past year is the use of meters which measure the flow at the well discharging directly into stock tanks, thus eliminating the necessity for gauge tanks.

"When selecting a meter for a given well it is important that sufficient capacity be provided to handle the maximum production from the well in the event that the well produces by heads. A gas eliminator, which is in reality a miniature gas trap, should be set immediately ahead of the meter to insure the delivery of gas-free fluid to the meter; otherwise, the recorded flow will be in error. A by-pass around the meter should be provided so that repairs or replacements may be made without shutting down the well, and a pop valve should be installed on the lead line and trap in the event that the meter becomes inoperative for any reason or a discharge valve closes in the gathering system.

"The chief advantages of the meter installation are the elimination of the first cost and maintenance of gauge tanks without eliminating individual well records, and all the production from one lease is pooled and held in a few tanks located at some convenient point. The number and size of these stock tanks will, of course, depend on the amount of production to be handled and on the shipping facilities. Monetary savings will be directly proportional to the number of wells; the more wells, the greater the saving. Other advantages are the ease of reporting production, as the meters are graduated to read in barrels directly; and, because of the presence of sampling devices with which these meters are equipped it is possible to obtain a fairly representative lead line sample as a few drops are secured at each pulsation of the meter.

"These meters are obtainable, either with or without an automatic device to compensate for temperature changes, and are known as thermometric or volumetric meters, respectively. Volumetric meters, when adjusted to agree with the gauge tank strapping, have proven entirely satisfactory."

WHY WAS IT CALLED THAT?

GUNNNING

When mud used in rotary drilling needs to be reconditioned as a result of lightness caused by entrained gas, it is common practice to recirculate it at the slush pits, much of the gas being released by this process. The recirculation is accomplished by pumping the mud from the pits through movable pipes fitted with nozzles, the relatively fine streams of mud being sprayed back over the top of the mud still standing in the pits. Adoption of the name "gunning" doubtless resulted from resemblance of the pipes to giant squirt-guns and similarity of the procedure to that employed in applying cement coatings.

DOES IT PAY TO COAT PIPE?

Does a question exist as to whether it really pays in the end to apply expensive coatings to pipe to prevent corrosion? At least one large oil company does not paint its field storage tanks, arguing that rust and corrosion cost less in the long run than paint. Is there not ground for taking a similar position with reference to the coating of pipes?—O. S. T.

The question you raise has received careful consideration on the part of pipe line owners and searching tests and experiments have been conducted to answer this very question. All evidence which has come under the notice of this department indicates that the practice of using good pipe-coating materials is economically sound and that the increased life of properly protected lines is ample justification for the investment in coatings. This view is confirmed by the Federal Oil Conservation Board in its report to President Hoover, which says:

"Corrosion is an important factor in determining the cost of a pipe line. The amount of expenditure warranted for protective pipe coatings depends upon the nature of the soil in which the pipe is to be laid and the relative corrosive effects of the soil. The economic value of good pipe coatings has become more and more appreciated during the past few years. Many operators are using costly pipe coatings, and experience has proved that such protections are economically justified. Frequently, the life of a pipe line in the ground may be prolonged 50 per cent by the application of proper pipe coatings."

A similar opinion is expressed by Stanley Gill of the research department of the Gulf Oil Corp., who has given this subject careful study and whose writings are widely read.

"Much progress has been made, and is being made," Mr. Gill states, "in the development of coatings for the protection of buried pipe lines. Many really effective coating systems are available, and numerous improvements and developments are to be expected. It is significant that more and more use is being made of more or less expensive coating systems; that the present tendency is to use coatings of proven effectiveness rather than to coat lines with materials whose most important qualifications are that they are 'black and cheap.'"

These comments represent the opinion held by experienced pipe line operators and engineers. This is particularly true, in many cases, if long experience and intimate study and association with the problem have been possible. Engineers or operators who have not enjoyed the advantages of long-time actual contact with pipe line corrosion and its prevention in their daily work frequently overlook its importance when suddenly confronted with the building of a new big line. A bare or inadequately protected line usually results, with the possibility of expensive reconditioning to be done in later years.

YOU CAN STOP AN ELEVATOR

BY PUSHING A BUTTON

BUT WHEN YOUR TUBING "GOES DOWN" YOU PUSH YOUR BANKER'S DOORBELL

Tubing that is lost in the hole takes a "one-way" trip to the bottom, with no "stops" on the way down. When fished out, (if it can be fished out) it looks like a good-sized gnarled cable, kinked up like the Gordian Knot. In the meantime, production is lost and the payroll runs on, probably increased. It's a lucky man who escapes borrowing money before he gets through with the mess.

NEW DUPLEX CATCHER

Developed to meet safety requirements of tubing in deep wells. Multiple slips, actuated by a common means, distribute load, easing shock on casing, and provide greater gripping area. Information on request.

At one iota of the cost, the Guiberson Tubing Catcher affords positive protection against such a catastrophe as the above. It stops a string of falling tubing within three inches. The strong spring operates with or without fluid in the hole. The heavy striker weight overcomes the retarding action of mud and paraffin. Attach to the foot of your tubing a Guiberson Tubing Catcher and know that any trips toward the bottom will have to make a sudden and permanent stop. ***Fully patented.***

"Better Be Safe Than Sorry"
THE GUIBERSON CORP.
Box 1106, Dallas, Texas
California Branch: 1506 Santa Fe Ave., Los Angeles
621 Kennedy Bldg. Tulsa — 321 S. Osage Ave. Ponca City — 506 Trust Bldg. Newark, O.

GUIBERSON

BETTER BE SAFE THAN SORRY

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GERMAN HYDROGENATION PLANT

Is there any hydrogenation plant similar to the several being built in the United States, now operating on a commercial scale in Germany? Have you the tests of a hydrogenated lubricating oil?—C. P. G.

The I. G. Farbenindustrie A. G. has for several years used the Berius process for the hydrogenation of coal tar, petroleum residues, and distillates for the manufacture of motor fuel. The unit is not in continuous operation being occasionally shut down for some reason. It has been recently reported that this plant was shut down in January because of the prevailing market conditions. Low priced motor fuels being plentiful at this time in Germany.

In this plant the expense of the hydrogenation process for making a motor fuel from the heavy coal tar and petroleum is said to be such that they cannot produce a high grade motor fuel to compete with the low priced gasoline which is available.

The present indications are that the hydrogenation process is adapted to meet the conditions of a high priced crude oil. With favorable market prices for gasoline and lubricating oils, the process is expected to yield gasoline of special antiknock properties, of very low gum and sulphur content. The lubricating oils that may be made from a wide range of crude oils has, from small scale investigations, been shown to be of exceptional purity.

Haslam and Russell mention in The Oil and Gas Journal, October 2, 1930, page 218, the properties of several finished hydrogenated lubricating oils. The hydrogenated product from Mid-Continent bright stock is reported as shown in the table:

	Bright stock	Hydrogenated
Gravity	23.1	29.1
Vis. @ 100° F.	2,780	1,411
Vis. @ 210° F.	147.5	118.5
Vis. index	84	108
Pour	20°	35°
Flash	510°	535°
Color	3/4R	10 3/4R
Carbon	2.00	0.09

The hydrogenation takes place under high pressure and temperature conditions in the presence of a catalyst. It is claimed that long time runs of six to eight months may be made without tar or coke formation.

SPECIAL NAPHTHAS AND SOLVENTS

We noticed in the January 22 issue an article asking for specifications of various grades of petroleum naphtha. You have in your reply covered Stoddard Solvent only. Could you give us some information on Oleum Spirits to be used in the paint and varnish trade? Also rubber solvent and cleaners' naphtha? Please furnish market quotations on rubber solvent.—A. V. S.

The special naphtha called Oleum Spirits may vary from 50 to 56 gravity, approximately 210° F. initial and 400° F. final boiling point. Distilling loss 1 per cent. Color 25/30 Saybolt. Sweet to the doctor test. No coloring of white lead after three hours. Odor shall be sweet. No greasy residue and negative to paper spot test. No acid residue. Rubber solvent is essentially hexane separated from natural gas, boiling between 136° and 156° F. It must meet all corrosion, color, evaporation, odor, and residue tests of the special naphthas. In addition it must show no weighable residue on evaporation. The present market price for commercial hexane varies between 15 and 20 cents a gallon in tank car lots and drums at the plant.

The ideal specification for cleaners' naphtha is that for Stoddard Solvent.

The principal use made by painters of the special petroleum naphtha is for the preparation of rapid drying paints and as a solvent for some lacquers. The rate of drying is important without producing an oily stain and without discoloring light colored pigments, it is for this reason that the white lead test has been devised and the specification requiring a negative doctor test. Also strange and bad odors are to be avoided.

WOOD ALCOHOL, COLUMBIAN SPIRITS, ETC., DILUTED AND COLORED

Is the red liquid Columbian Spirits a special preparation of wood alcohol used as antifreeze solution? Could you furnish the details of the government permits for selling wood alcohol?—B. A. F.

Wood alcohol is a powerful poison when taken internally so some dealers have adopted the practice of giving it a distinct color to warn persons handling it of its dangerous properties. This alcohol is known sometimes as Columbian Spirits, methyl alcohol, colonial spirits, methanol, wood naphtha, methyl hydrate and greenwood spirits. No special permits are required for dealers who may wish to sell methanol. Recently a bill was introduced in the United States Senate which has for its object the restriction of the sale of methanol and the preparation of antifreeze mixtures containing it.

Under the terms of the bill wood alcohol can be transported or offered for sale in the United States only when the following provisions are complied with:

"1. It shall be distinctively colored so that by its appearance it cannot be confused with potable alcohol.

"2. It shall contain a substance which will induce vomiting, or such other substance as may be recommended by the United States Public Health Service.

"3. All containers of quantities less than tank car lots shall be plainly marked on the outside with a stencil or label securely attached, which bears the word 'methanol' in red ink in letters at least one-half inch in height, and below such word 'methanol' shall also be in red ink the skull and crossbones symbol and in plain legible letters the words:

" 'Poison, methanol is a violent poison. It cannot be made nonpoisonous. If taken internally will cause blindness and death.' "

Section 3 of the bill states that it shall be unlawful for any person conducting a store, garage, filling station, or other place selling antifreeze mixtures or compounds at retail, or any of the employes of such person, to sell, offer for sale, give away, or transfer to another person any antifreeze mixture or compounds containing in excess of 10 per cent of methanol or/and ethyl alcohol in quantities less than 50-gallon drum lots unless before delivery is made there be recorded in a book kept for the purpose—date of sale, name and address of person to whom sold; article and quantity delivered; purpose for which it is to be used, and name of person making sale.

This bill was introduced by Senator McKellar, Tennessee.

MOTORS FOR HAZARDOUS LOCATIONS

What is the meaning of the label on a motor—"For use in hazardous locations—Class 1?" To what does Class 1 refer?—W. R. L.

Until recently the Underwriters' Laboratories has listed electric motors for use in hazardous locations by style and number so that identification has required comparison with published lists. This system has been replaced by a label service, under which each motor bears a metal label making possible immediate identification as a listed device. The labels include "Underwriters' Laboratories inspected motor for use in hazardous locations" together with the class for which the motor is required.

Motors are classified as follows: Class 1—(a) acetylene, (b) hydrogen, (c) ether (ethyl), (d) gasoline (pyroxylin lacquer vapor); Class 2—(e) metal dust, (f) carbon black and coal and coke dust, (g) grain dust. The groups in Class 1 have been so arranged that a motor judged suitable for a particular group is also appropriate for installation in subsequent groups of the same class. In Class 2 motors are not necessarily acceptable for other types of dust than those specifically designated.

COOLING ALUMINUM STEARATE GREASE

Regarding aluminum stearate grease mentioned on your page in The Oil and Gas Journal, January 29, 1931, the method I have found best adapted to produce a clear finished product may be of interest.—C.

Mix the aluminum stearate with the mineral oil so that the stearate is saturated with the oil in the cold; allow to soak thus over night. In the morning heat slowly to around 300° when amalgamation should be complete. The next step is the chilling and this is where beginners err. As a rule they consider it should act the same as regular grease but such is not the case. Special coolers have to be made of either galvanized zinc or plain tin. The size is generally 48 inches long, 24 inches wide and 6 inches deep, and these should be placed on racks where air circulation is normal and temperature regular. When amalgamation is complete then run into the trays and allow to cool of its own accord. It may take 24 or 48 hours to cool and set properly, but if this procedure is followed closely the finished product will be transparent and show no separation. Put into containers which can be sealed airtight. It is the atmosphere which causes the separation. Being hygroscopic it absorbs any damp air and thus sweating and separation invariably result if the grease is not protected.

ACID RECOVERY BY VACUUM PROCESS

Would you kindly give an outline showing the essential principles of the high vacuum process for recovering sulphuric acid from waste acid?—W. E. C.

The vacuum process, as applied to waste acid mixtures, involves removal of the water and the concentration of the acid to a desired density in a closed vessel under a relatively high vacuum by the application of indirect heat. It reduces the boiling point of the acid to such a level that heating mediums of comparatively low pressure and temperature may be used. This reduces the corrosive action of the acid and simplifies the construction of the apparatus.

The concentration of sulphuric acid to 61° Be. requires a vacuum of only 28 inches as the boiling point of the acid does not exceed 260° F., and a steam pressure of 45 pounds will give a minimum temperature difference of 30° F. With a steam pressure of 100 pounds the acid can be concentrated to about 63° Be., but in order to reach a density of 66° under 28 inches vacuum it is necessary to use oil at 500° F. as the heating medium.

The boiling point of 66° acid is reduced to 280° under a vacuum of 29.7 inches and therefore steam at 100 pounds instead of hot oil can be used; for 65° acid a steam pressure of 45 pounds is sufficient. This high vacuum is produced by a steam ejector or vacuum booster which draws the vapors from the concentrator and discharges them into a condenser operating under a vacuum from 27 to 28 inches. A vacuum booster entirely eliminates the oil heating system and therefore greatly reduces the cost and operating expense. The entire operation being confined to one apparatus.

The concentration takes place in two stages. In the first the acid is concentrated with steam at 100 pounds to 63° Be. and the vapors and gases pass through the booster to the condenser; during the second step live steam at 100 pounds is turned into the booster and the vacuum in the concentrator is gradually increased from 28 to 29.8 inches. By raising the vacuum to this stage the boiling point of 66° acid is sufficiently reduced to maintain an effective difference between the temperature of the boiling acid and that of 100 pounds pressure steam. Under similar operating conditions 65° acid is produced with 45 pounds pressure steam.

CLEANING DISTILLATION FLASKS

We would like to know some method for removing carbon which forms in the bottom of gasoline distillation flasks?—A. S. H.

It is the common practice in petroleum laboratories to clean the distillation flasks with sodium hydroxide solution. About 75 cc. of the solution, approximately 12 Be. caustic from the treating plant, is placed in the flask and slowly heated to the boiling point. Usually continued boiling for 15 to 20 minutes will be long enough to disintegrate the deposit and the final washing may then be completed with hot water. Do not use doctor solution for this purpose.

For other than routine testing a clean flask is essential, so many laboratories require that flasks be cleaned after each test. When this is done, a few minutes heating with caustic solution is all that is required and some testers prefer potassium chromate solution acidulated with sulphuric acid for all of the ordinary deposits in glassware.

Economics should not be overlooked. Often such hard deposits will collect in a flask, and possibly the glass softened by heating to redness, that the expense of reclaiming the flask exceeds its value.

Oil Burning Vogt Boilers!

Prove their Efficiency at Empire Oil and Refining Co.

Interior and construction view of 3-500 H. P. Vogt Curved Tube Boilers designed to burn either oil or gas.

The purchaser's test engineer in his report of the efficiency obtained quotes as follows:

"THE AMOUNT OF HEAT UP THE STACK AT THIS PLANT IS UNUSUALLY LOW. THE AVERAGE PLANT USING EFFICIENT METHODS HAS A HEAT LOSS USUALLY BETWEEN 12% AND 15% UP THE STACK; OUR AVERAGE HERE IS 11.6%."

This test was conducted burning tail gas and only using sufficient natural gas to make up required amount.

Such unbiased facts influence the careful buyer, as evidenced by the increasing sale of Vogt boilers.

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AN "AMERICAN" IN OKLAHOMA

AN "American" Oil Well Pumping Unit is on the job at the Carter Oil Company plant at Oilton, Oklahoma. This is a No. 4-A 1822 unit, installed in a well approximately 2500 ft. deep, using 2" tubing and ¾" rods, and pumping on a 24" stroke. This particular unit is direct-driven by an electric motor.

"American" Oil Well Units provide for a wide variance in the type of drive and are designed for a wide range of conditions. They are totally enclosed, compact units. Gears and pinions are oil immersed, and all bearings except two are automatically lubricated. Power consumption is small, and they are efficient and dependable in performance.

Detailed figures and engineering data of typical installations of this equipment in both this country and others are available. Ask for them!

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LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

OUACHITA PARISH

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4.....Location (reported drlg. in error).
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4.....Location.

RICHLAND PARISH

Richland Prod. Co.'s No. 1 Cooper, 600 ft. N, 600 ft. W, SE cor., Sec. 13-16-6.....Location.
Southern Carbon Co.'s No. 2-B Thomason, 1,980 ft. S, 2,080 ft. W, NE cor., Sec. 23-16-6.....Began drlg. Feb. 11; cmtd. 12½-in. 175 ft; 8-in. 752 ft; drlg. 945 ft.
United (was Southern) Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6.....Location.
United Carbon Co.'s No. 1 Lindow, 1,980 ft. S, 27 ft. E, NW cor., Sec. 15-16-6.....Began drlg. Feb. 13; cmtd. 12-in. 136 ft.
United Prod. Co.'s No. 1-A Wolf, 660 ft. S, 1,650 ft. E, NW cor. SW, Sec. 35-17-6.....Cmtd. 6-in. 2,298 ft.
United Prod. Co.'s No. 1-B Wolf, 1,980 ft. N C, Sec. 34-17-6.....Cmtd. 6-in. 2,300 ft.

SABINE PARISH—ZWOLLE

Bradley Drlg. Co.'s No. 1 Newton, 600 ft. W, 600 ft. S, NE cor. NW SE, Sec. 25-8-13.....Cmtd. 10-in. 101 ft; drlg. 1,500 ft.
O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12.....Fishing D.S. 1,800 ft.
Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12.....Losing returns 2,448 ft.
Ohio Oil Co.'s No. 6 Bowman-Hicks, 300 ft. N, 265 ft. W, C, Sec. 2-7-12.....Drlg. chalk 2,495 ft.
Ohio Oil Co.'s No. 7 Bowman-Hicks, 250 ft. N, 1,370 ft. E, SW cor. NW NE, Sec. 2-7-12.....Rig up.
Pelican Nat. Gas Co.'s No. 3 La. Long Leaf Lbr. Co., 334 ft. N, 330 ft. E, SW cor. NW SW, Sec. 4-7-11.....S.D. 2,550 ft.
H. W. Perritt's No. 2 Bowman-Hicks, NW cor. SE NE, Sec. 2-7-12.....S.D; W.O. 2,275 ft.
H. W. Perritt's No. 3 Bowman-Hicks, 244 ft. S, 122 ft. E, NW cor. SE SW, Sec. 2-7-12.....S.D. 970 ft.
J. M. Tompkins' No. 1 M. R. Stoker, 300 ft. S, 100 ft. W, NE cor. SW, Sec. 10-7-11.....Recmtd. 6⅝-in. 2,362 ft.
J. C. Walton's No. 1 Sabine Lbr. Co., 300 ft. S, 300 ft. W, NE cor. NW, Sec. 11-7-12.....S.D. 1,930 ft.

SABINE PARISH—PLEASANT HILL

John Henry O. & G. Co.'s No. 2 Cook Land Co., 1,990 ft. S, 1,640 ft. E, NW cor., Sec. 34-10-13.....Cmtd. 6-in. 3,171 ft.

WEBSTER PARISH—SAREPTA

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10.....S.D. 150 ft.

ARKANSAS

OUACHITA COUNTY—SMACKOVER

L. H. Hamilton's No. 3 Doyle, 100 ft. S, 400 ft. N, SW cor. SE SE, Sec. 23-15-16.....T.A. 2,020 ft.

OUACHITA COUNTY—STEPHENS

J. D. Reynolds' No. 1 Grayson, Sec. 21-15-15 (Stephens Townsite).....Cored Nocatoch 1,502-14 ft; drlg. 1,610 ft.
Wesson & Bonner's No. 1 Wesson, 500 ft. W, 175 ft. N, SE cor. SW NW, Sec. 22-15-19.....Setting packer to cut off wtr. flow 2,169 ft.

UNION COUNTY—CHAMPAGNOLLE

Ohio Oil Co.'s No. 2 Raulston, 330 ft. S, 330 ft. E, NW cor. NW SE, Sec. 12-17-14.....Derrick.
Ohio Oil Co.'s No. 5 R. Pumphrey, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 12-17-14.....Cmtd. 6⅝-in. 2,985 ft; T.D. 3,007 ft.

UNION COUNTY—EL DORADO

Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15.....S.D; repairing rig; T.D. 1,830 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15.....Skidded 26 ft. east.

EAST TEXAS

HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur.....Location.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 13 Louis Werner, 1,590 ft. S, 600 ft. W, SE cor. Carrie Steele tr., B. C. Jordan Sur..Began drlg. Feb. 15; cmtd. 12½-in. 142 ft.
Daisy O. & G. Co.'s No. 1 Rucks, John Palmer Sur.....Cmtd. 8-in. 1,900 ft.
Dillon & Bradham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur.....S.D. 905 ft.
S. E. Bell et al's No. 1 Burnett Lbr. Co., C. S. B. Hendricks Sur.....Drlg. 3,105 ft.
C. D. Neff et al's No. 6 Brumble, B. C. Jordan Sur. ....Derrick.
Knox et al's No. 1 Dunham, Chas. Haley Sur.....Drlg. hard lime 3,097 ft.
Nat. Gas Prod. Co.'s No. 1 H. H. Alvord, 6,777 ft. S, 6,162 ft. E, NW cor., B. C. Jordan Sur.....Arranging test 4,698 ft.

MISSISSIPPI

HINDS COUNTY

Cleve Love et al's No. 2 Ridgeway-McGhee, SE cor. NW, Sec. 2-5-1e.....Rigging up.
Love Pet. Co.'s No. 2 Maley (no check), Sec. 15-5-1e....Derrick.
Love Pet. Co.'s No. 1 Bob Taylor, 275 ft. S, 50 ft. E, NW cor. NE SW, Sec. 34-6-1e.....Cmtd. 6⅝-in. 3,324 ft.
Miss. Pet. Co.'s No. 2 Baptist Orphanage, 210 ft. N, 210 ft. W, SE cor. NE SE, Sec. 28-6-1e.....Drlg. black shale 2,460 ft.
Pirtle & Flint's No. 1 Payne, 450 ft. W, 50 ft. N, SE cor. SW SW, Sec. 27-6-1e.....Drlg. 2,340 ft.

RANKIN COUNTY

Miss. G. & F. Co.'s No. 1 Hanna, SW cor. SW NE, Sec. 14-5-1e.....Derrick.
Pioneer O. & G. Co.'s No. 1 Ragland, NE cor. SW SW, Sec. 12-5-1e.....Derrick.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

CLAIBORNE PARISH

Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W, SE cor. NE, Sec. 30-20-7.....Drlg. 3,415 ft.
Baugh et al's No. 1 Alexander, 330 ft. S, 330 ft. W, NE cor., Sec. 27-20-8.....S.D. 2,200 ft.

CONCORDIA PARISH

Ark.-La. P. L. Co.'s No. 1 Alexander, SE cor. S½, Sec. 47-8-9.....Drlg. 2,040 ft.
Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e.....S.D. 3,622 ft.
United Gas Public Service Corp.'s No. 3 Saunders (no check), Sec. 42-8-10.....Began drlg. Feb. 15; cmtd. 12¼-in. 160 ft.
Fred Stovall's No. 1 Grasmere (no check), Sec. 23-8-10..Drlg. 565 ft.

DESOTO PARISH

Dupree-Fountain's No. 1 J. M. Nabors, 250 ft. S, 250 ft. W, NE cor. NW cor., Sec. 5-13-11.....Derrick.
S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S, NW cor. NE, Sec. 31-14-14.....S.D; sandy shale 1,354 ft.
Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15.....S.D. 2,350 ft.
C. D. Neff et al's No. 1 Ramsey, 1,000 ft. W, 400 ft. S, NE cor. SE, Sec. 33-13-16.....Drlg. 2,300 ft.
Ernest Nickelson's No. 1 Nabors, 1,200 ft. N, 1,800 ft. W, SE cor., Sec. 32-13-11.....Drlg. 750 ft.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... S.D. 3,718 ft.
J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10 ..... W.O. 2,908 ft.
Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10 ..... S.D. 1,515 ft.
Gulf Ref. Co.'s No. 1 Bodcaw, 1,910 ft. S, 605 ft. W, NE cor., Sec. 13-13-8 ..... Cored lime 3,568 ft.
C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10 ..... Drlg. gumbo 1,130 ft.

RED RIVER PARISH

Lucky Strike Oil Co.'s No. 1 Chaffraix, 200 ft. S, 200 ft. E, C, Sec. 32-12-10 ..... Arranging D.S. test 2,800-2,900 ft; old T.D. 3,010 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.
La. G. & F. Co.'s No. 1 Glanton, 262 ft. E, 618 ft. N, SW cor. NW SE, Sec. 33-17-6 ..... Arranging test 3,130 ft.
Southern Carbon Co.'s No. 1 C. M. Noble, 4,636 ft. N, 2,254 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 ..... Cmtd. 8-in. 848 ft; drilled 1,518 ft.
Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6 ..... Location.

SABINE PARISH

Buttram O. & G. Co.'s No. 1 Hale, 200 ft. N, 200 ft. E, SW cor. NE NE, Sec. 1-7-13 ..... Cmtd. 10-in. 80 ft; drlg. 2,070 ft.
Packard O. & G. Co.'s No. 1 Smith (was Caddo-Sabine Synd.'s), Sec. 8-7-10 ..... Began drlg. Feb. 12; cmtd. 10-in. 80 ft; drlg. 950 ft.
Durham Oil Co.'s No. 1 Polly (was Davis et al's), NE cor. NE NE, Sec. 18-8-12 (was Stacy et al's) ..... Coring 2,050 ft.
Diffie & Barnett's No. 1 Lites (was J. W. Clark's) 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11 ..... Began drlg. Nov. 20; cmtd. 10-in. 105 ft.
Franks et al's No. 1 Dew, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11 ..... Arranging test 2,380 ft.
Lacy Jessup Oil Co.'s No. 1 Brown Lbr. Co. (was Lacey et al's), C NW NE, Sec. 28-8-10 ..... S.D. 3,160 ft.
Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11 ..... W.O.S.R; 1,200 ft. oil; T.D. 2,620 ft.
Lawrence et al's No. 1 Hubley, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 21-7-11 ..... S.D. 2,650 ft.
Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11 ..... Top marl 2,395 ft; cmtd. 6-in. 2,385 ft; T.D. 2,407 ft; tested dry 2,412 ft; 100 ft. oil in hole from 2,422 ft; D.S. test dry; show oil and gas 2,800 ft; W.O.S.R.
Lide et al's No. 2 Ponder, 200 ft. S, 200 ft. E, NW cor. NE NW, Sec. 15-7-11 ..... Small show oil and gas 2,520 ft; arranging to deepen.
Magnolia Pet. Co.'s No. 1 R. J. Lucius, 990 ft. S, 990 ft. W, NE cor. NW NE, Sec. 2-5-12 ..... Fishing 10 joints D.S; T.D. 3,855 ft.
Merritt et al's No. 1 Byrd, 200 ft. N, 200 ft. W, SE cor. NW, Sec. 1-7-11 ..... Cmtd. 10-in. 80 ft; drlg. 960 ft.
P. & G. Oil Co.'s No. 1 Williams, 330 ft. S, 330 ft. W, NE cor. SE NW, Sec. 21-7-12 ..... Rig up.
W. P. Pearce et al's No. 1 G. Pearce, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-7-11 ..... W.O; 150 ft. oil in hole; T.D. 3,600 ft.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Made 30-ft. hole 3,280-3,310 ft; S.D.
Trans-America Oil Corp.'s (was Southland Oil Co.'s) No. 1 Carter, 1,030 ft. W, 345 ft. N, SE cor. SE NE, Sec. 36-8-12 ..... W.O; 60 ft. oil in hole; T.D. 3,515 ft.
A. H. Tarver, trustee's No. 1 Baker, 330 ft. S, 330 ft. E, NW cor. NE, Sec. 36-8-12 ..... S.D. 4,100 ft.
Triangle Pet. Co.'s No. 1 Sabine Lbr. Co. (was R. B. Whittle's), 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 36-8-12 ..... Fishing 4½-in. csg. 1,900 ft; T.D. 2,274 ft.
Wilson & Son's No. 1 Gandy-Garrett, NW SW, Sec. 4-5-12 (portable rig) ..... T.A. 2,509 ft.
John Woodley's No. 1 Sabine Lbr. Co., 400 ft. S, 330 ft. W, NE cor. SE, Sec. 12-8-12 ..... Drlg. 1,900 ft.

TENSAS PARISH

Seip et al's No. 1 Fowler, C SW NE, Sec. 10-10-10 ..... S.D. 905 ft.
A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,009 ft.

WEBSTER PARISH

Coyle, trustee's No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11 ..... Derrick.
Red Hawk Oil Co.'s No. 1 Mathews, 330 ft. N, 330 ft. E, C, Sec. 11-23-9 ..... S.D. 250 ft.

ARKANSAS

CHICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3 ..... Cmtd. back to 2,888 ft; T.D. 2,925 ft; arranging whipstock 2,865 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-3 ..... Drlg. sandy shale 805 ft.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Swedging csg. 2,300 ft; T.D. 2,740 ft.

CRAWFORD COUNTY

Citizens Gas Co.'s No. 1 G. W. Hood, 600 ft. S, 300 ft. E, NW cor. NE SE, Sec. 18-9-32 ..... Location.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 30 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... Drlg. rock 2,572 ft.
J. H. James, trustee's No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NW NE, Sec. 11-9-15 ..... Drlg. hard rock 1,975 ft.

GARLAND COUNTY
(Cable tools)

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... Hole full S.W; pulling 5 3/16-in.; T.D. 3,756 ft.

GRANT COUNTY

Spann & McClung's No. 1 Sarah Page, 660 ft. W, 660 ft. S, NE cor. NW, Sec. 3-3-12 ..... Drlg. 438 ft.

HOT SPRINGS COUNTY

Anisman et al's No. 1 Hinson est., NE NE, Sec. 19-4-16 (portable rig) ..... Fishing 600 ft. 5 3/16-in.; T.D. 1,604 ft.
John Watkins' No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... Cmtd. 12½-in. 42 ft; S.D. 110 ft.

LAFAYETTE COUNTY

McIver et al's No. 1 Hottle, NW cor. NE, Sec. 1-20-6 ..... Cmtd. 12½-in. 115 ft; drlg. 1,105 ft.
Smitherman & McDonald's No. 1 Reed, 200 ft. N, 200 ft. W, SE cor. NW NW, Sec. 16-15-22 ..... Cmtd. 8-in. 1,192 ft; T.D. 1,194 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-29 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D; W.O. 3,610 ft.

MADISON COUNTY
(Cable tools)

J. W. Baxter's No. 2 Hallin, C, Sec. 17-16-26 ..... T.A. 405 ft.
J. W. Baxter's No. 3 Hallin, NE SW, Sec. 1-17-26 ..... S.D. 50 ft.

MILLER COUNTY

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33-14-26 ..... D.S. stuck 2,720 ft; T.D. 2,818 ft.
East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26 ..... Set full string 4½-in. 2,957 ft; S. W. 2,961 ft; arranging core.
E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26 ..... S.D. litigation; T.D. 2,968 ft.
Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26 ..... Began drlg. Oct. 13; cmtd. 10-in. 93 ft.
Gusher Bend Oil Co.'s No. 1 Adams, 120 ft. S, 800 ft. W, NE cor. NW, Sec. 26-14-26 ..... Drlg. lime 2,465 ft.
Lenz et al's No. 2 Johnson, SE cor., Sec. 24-15-16 ..... S.D. 4,500 ft.
Lenz et al's No. 3 Johnson, 250 ft. W, 150 ft. N, SE cor. NE NW, Sec. 24-15-26 ..... S.D. 2,850 ft.
J. D. McRae's No. 1 Smith, 150 ft. N, 150 ft. W, SE cor., Sec. 28-15-26 ..... Derrick.
Salzer & McRae's No. 1 Rose, SW cor. NE SW, Sec. 9-16-26 ..... S.D. fuel 475 ft.

OUACHITA COUNTY

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17 ..... S.D. 2,907 ft.
Copenhaven et al's No. 1 Elliott, Sec. 11-15-17 ..... S.D; W.O. 2,137 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... S.D. 3,110 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... Derrick.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 1 Baird, 760 ft. S, 660 ft. E, NW cor., Sec. 11-7-20 ..... Began drlg. Feb. 11; drlg. shale 160 ft.
Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21 ..... Drlg. sandy shale 3,710 ft. (C.D.).

SCOTT COUNTY

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 27-5-30 ..... Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D. 1,536 ft.
Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D. 1,815 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13 ..... Cmtd. 6⅝-in. 3,559 ft.
S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17 ..... S.D; W.O. 3,092 ft.
Marine Oil Co.'s No. 2-B Thompson, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 10-18-13 ..... Drlg. 2,275 ft.
C. H. Murphy et al's No. 1 Union Saw Mill Co., 330 ft. E, 330 ft. N, SW cor. NW SW, Sec. 18-18-13 ..... Rig up.

VAN BUREN COUNTY

Glenn Kohle et al's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY
(Cable tools)

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32 ..... S.D; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... Drlg. 1,735 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29 ..... S.D. 1,700 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-21 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... S.D. 632 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 720 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr., in J. H. Murphy Sur. ..... Cored sand 2,510-30 ft; drlg. 2,600 ft.

CASS COUNTY

Olds & Smith's No. 1 Atheny, 3,056 ft. W-E line, 356 ft. S-N line, J. C. Byers Sur. ..... Drlg. 1,285 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. ..... Cmtd. 6⅝-in. 3,275 ft.
John C. Rogers et al's No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor. Wm. Davis Sur. ..... S.D. 810 ft.
J. E. Smitherman's No. 1 Bell, 385 varas S, 108 varas W, NE cor. J. E. Ferrell Sur. ..... Began drlg. Feb. 11; cmtd. 10-in. 360 ft; drlg. 410 ft.

HARRISON COUNTY

Corona Pet. Co.'s No. 1 A. J. Bohler, C, Bohler 140 ac. in SW cor. S. F. Sparks Sur. ..... Rig up.
Crump & Hannegan's No. 1 Dunn, Betty Humphreys Sur. ..... Rig up.
W. M. Hobson, tr.'s No. 1 P. P. Taylor, Hy Vardaman Sur. ..... Location.
S. D. Hunter's No. 2 Dougherty, W. D. Burris Sur. ..... Drlg. rock 3,050 ft.
O. H. Parkening's No. 1 T. J. Taylor, center Blk. 32, W. H. Payne Sur. ..... Derrick.
O. H. Parkening's No. 2 T. J. Taylor, center J. C. Hawley Sur. ..... Derrick.
W. G. Ray Drlg. Co.'s No. 1 F. C. Hall, D. Davis Sur. ..... Location.
Rowe-Nichols' No. 1 Pitts, E. A. Merchant Sur. ..... Location.

MARION COUNTY

Geo. Hindman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... Cmtd. 13-in. 350 ft; S.D. repaire 400 ft.
Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W, most northerly SW cor., 1,638 ft. N, most northerly S line, W. J. Wills Sur. ..... S.D. 2,300 ft.
P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur. ..... Fishing 10 joints D.S; T.D. 1,884 ft.

PANOLA COUNTY

Everette Drlg. Co.'s No. 1 E. L. McDaniels, 200 ft. S, 200 ft. W. NE cor. McDaniels' 116 ac., Alanson Barr Sur. ..... Location.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ..... Drlg. 2,795 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. ..... Swedging 3 joints collapsed 8-in; arranging to cmt. 6⅝-in. and packer 2,812 ft.

SHELBY COUNTY

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ..... S.D. 3,107 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

CLARK COUNTY

Company, farm and location— Remarks—

Gulf Ref. Co.'s No. 1 Box, 526 ft. W, 498 ft. N, C SE, Sec. 11-2n-15e ..... Location.

CLAY COUNTY
(Cable tools)

Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5 ..... Drlg. sandy shale 2,892 ft.

COVINGTON COUNTY

United Prod. Co.'s No. 1 McIntosh (was S. P. Borden et al's), 330 ft. S, 330 ft. W, NE cor. SW NE, Sec. 8-8-16 ..... Fishing D.S; T.D. 3,378 ft.
Miss. Gulf O. & G. Co.'s No. 1 Pope, 200 ft. N, 200 ft. W, SE cor. W½ NE, Sec. 35-8-16 ..... S.D; W.O. 3,000 ft.

GRENADA COUNTY

Carter-Pace's No. 1 Dubard (was F. E. West et al's), NW NW, Sec. 18-22-4 ..... D.S. test 2,966 ft; dry; arranging to deepen.

HINDS COUNTY

Attkisson & Dyer's No. 1 Downing et al, SE NE, Sec. 27-6-1 ..... Rigging up.
Cane River O. & G. Co.'s No. 1 Kabbles, NE cor. SW SW, Sec. 16-5-1e ..... Cmtd. cavity 3,270 ft; in red beds.

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Gulf Ref. Co.'s No. 1 McLaurin, 1,230 ft. S, 1,410 ft. W, NE cor., Sec. 30-6-2e ..... Losing returns; T.D. 3,646 ft; in chalk.

Gulf Ref. Co.'s No. 1 School, 660 ft. N, 660 ft. E, SW cor., Sec. 16-6-1e ..... Drlg. Wilcox 2,556 ft.

Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... Began drlg. Dec. 22; cmtd. 1 joint 13⅜-in.; S.D.

Miss. Pet. Co.'s No. 1 Solvent Inv. Co., NE cor. NE SW SW, Sec. 14-5-1w ..... T.A. 2,042 ft.

Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... Began drlg. Dec. 22; S.D. 20 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keys, C NW NE, Sec. 21-3-10 ..... Began drlg. Dec. 16; cmtd. 15⅛-in. 104 ft; S.D.

LAFAYETTE COUNTY

Banks-Good et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 32-10-1w ..... Derrick.

MADISON COUNTY

Central O. & G. Co.'s No. 1 Cameron, 200 ft. W, 200 ft. N, SE cor., Sec. 11-9-1e ..... Drlg. sandy shale 2,800 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... W.O. 3,007 ft.

Amory Pet. Co.'s No. 1 Harris, SW cor. SE SE, Sec. 13-13-7 ..... Hard black shale 715 ft.

Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19 ..... Drlg. sandy lime 1,288 ft.

NESHOBA COUNTY

Collins et al's No. 1 J. M. Carter, SE SE, Sec. 29-11-13.. S.D. 2,058 ft.

RANKIN COUNTY

R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.. S.D. 900 ft.

Cleve Love's No. 1 Muse, SE cor. SW SW, Sec. 32-7-4e.. Drlg. Wilcox 1,900 ft.

Millstein O. & G. Co.'s No. 1 Gammill-Hartsfield, 400 ft. E, 400 ft. N, SW cor. SW SE, Sec. 6-5-2e..... 200 ft. fluid; 50 ft. oil 2,503 ft. W.O.

SMITH COUNTY

Pocahontas Nat. Gas Co.'s No. 1 Adams-Banks Lbr. Co. C NE SW NW ..... Rig up.

WARREN COUNTY

Dixie Pet. Co.'s No. 1 Clark, 300 ft. E, 660 ft. S, NW cor., Sec. 31-17-5 ..... Arranging D.S. test 2,232 ft.

Vicksburg Oil Co.'s No. 1 Dornbush, 2,080 ft. S, 1,520 ft. W, NE cor., Sec. 8-18-5..... S.D. 1,600 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14. Fishing bit 2,157 ft.

YALOBUSHA COUNTY

Collett-Carter Oil Co.'s No. 2 Blackmur, 990 ft. W, 285 ft. N, C, Sec. 14-11-4..... Cmtd. 6⅝-in. 2,426 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 36)

GREENWOOD COUNTY

T. K. Simmons' No. 2 Barnard, SW SE SE Sec. 19-22-12.. Drlg. 995 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-36-6w ..... Shut down 1,820 ft.

HARVEY COUNTY

Empire-Shell's No. 1 Showalter, NW SE Sec. 23-23-2w... Drlg. 1,250 ft.

KINGMAN COUNTY

Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w ..... 1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; S. D.; estimated at 600 bbls. a day.

KIOWA COUNTY

McKenna et al's No. 1 Ralston, C NE Sec. 14-28-20w .... Rig.

LYONS COUNTY

Griffith et al's No. 1 King, NW cor. Sec. 8-19-10 ..... Shut down 910 ft.

MARION COUNTY

Midwell's No. 1 La Master, NW cor. Sec. 31-22-4 ..... Shut down 650 ft.

McPHERSON COUNTY

United Pet. Co.'s No. 1 Kaigi, NE cor. Sec. 20-19-1w ..... Chat 2,917-55 ft.; 15,000,000 ft gas; comp.

Henderson & Holden's No. 1 Sommerfield, NE NW Sec. 23-19-1w ..... Drlg. 2,954 ft.; showing 25 bbls. of oil and 50 bbls. of water a day; T. D. 3,227 ft.; shut down.

Aladdin Pet.'s No. 1 Rudolph, NW NE Sec. 36-18-3w..... Rig.

Slick et al's No. 1 Randall, C SW SW Sec. 35-17-3w..... Drlg. 3,138 ft.

Aladdin Pet. Co.'s No. 1 Larson, C NW Sec. 22-18-4w..... Rig.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w ..... Fishing 5-in. csg. 3,460 ft.

MORRIS COUNTY

Great Basin Oil Co.'s No. 1 Ballyntine, SW SE SE Sec. 18-16-5 ..... Shut down 1,710 ft.

Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7.. Machine.

Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9.... Drlg. 650 ft.

NESS COUNTY

Gypsy Oil Co.'s No. 1 Coleman, C SW NE Sec. 25-17-25w.. Drlg. 3,979 ft.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Shut down 1,050 ft.

PRATT COUNTY

Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w ..... Aband. 4,707-10 ft.; water.

RAWLINS COUNTY

J. G. Durham et al's No. 1 Unknown, SW cor. Sec. 8-2-35w ..... Underreaming 10-in. csg.; T. D 2,150 ft.

RICE COUNTY

Detrick & Langston's No. 1 Purcell, NW cor. Sec. 33-19-9w ..... Rig.

McFadden and Shell's No. 1 Jennings, SW NE NW Sec. 29-18-6w ..... Spudding.

Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w ..... Drlg. 1,470 ft.

Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w.. Rig.

Muth Bros.' No. 1 Beyers, NE NW Sec. 21-19-9w ..... Silicious lime 3,213-44 ft.; showing 200 bbls. in 9 hrs.

ROOKS COUNTY

Empire Oil & Ref. Co.'s No. 1 Halsman, SW NE SE Sec. 17-7-20w ..... Shut down 1,336 ft.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w ..... Drlg. 435 ft.

RUSSELL COUNTY

Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Show oil 3,042-44 ft.; bailed 18 bbls. 3 hrs.; now shut down.

Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w .... Shut down 3,814 ft.

SEDGWICK COUNTY

Streeter & Stearns' No. 1 Tobin, SW SE NE Sec. 5-22-2.. Drlg. 3,053 ft.

Buck et al's No. 1 McNananan, NE NW NW Sec. 3-29-1.. Drlg. 865 ft.

SALINE COUNTY

Sampson et al's No. 1 Sudenderf, NE SE Sec. 30-14-2w... Drlg. 3,085 ft.

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Shut down 2,700 ft.

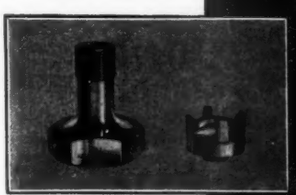
STEVENS COUNTY

Sidwell et al's No. 1 Kelly, SW NE Sec. 16-34-38w ..... Drlg. 2,165 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 .... Shut down 1,720 ft.

EXTRA WEIGHT
means extra service



THE extra weight of Fig. 106-A Jenkins Standard Bronze Globe Valve is a result of extra metal . . . and every extra ounce means extra service . . . longer, leak-tight valve performance.

In this sturdy Jenkins, as well as in its corresponding angle and cross types, are combined both the one-piece screw-over bonnet and the slip-on stay-on disc holder.

The bonnet construction is a refinement which provides unusual strength. The bonnet can be easily removed and replaced *repeatedly* without springing or distorting. Jenkins slip-on disc holder is unique in that an opening turn or so of the hand wheel is sufficient to prevent it from dropping off the spindle when the valve bonnet is removed.

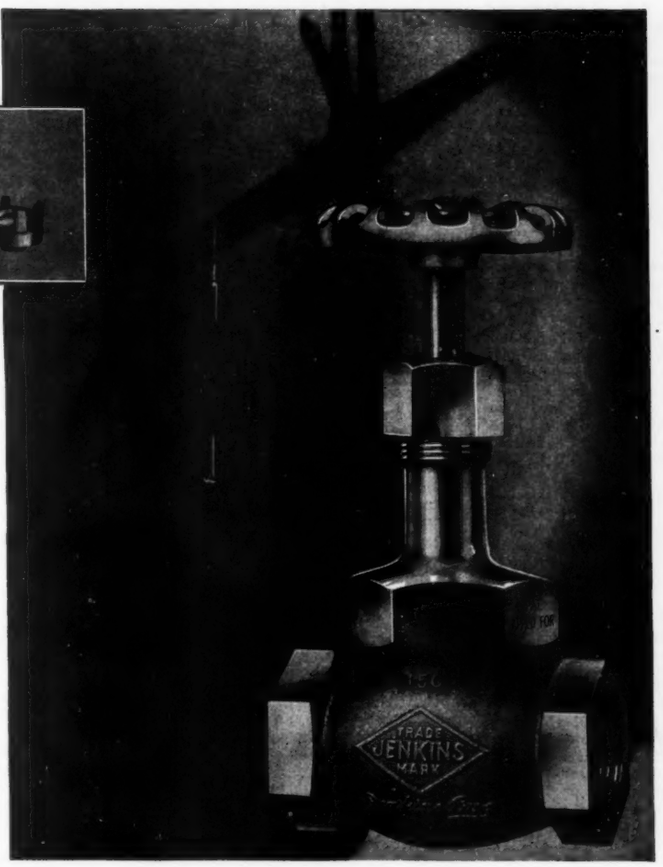


FIG. 106-A, *Screwed, Jenkins Standard Bronze Globe Valve, with one-piece screw-over bonnet and slip-on stay-on disc holder. For 150 lbs. steam working pressure, or 250 lbs. oil, water, gas working pressure.*

Ask your supply man to show you Fig. 106-A. It is an up-to-the-minute valve with all the earmarks of Jenkins quality. Write for illustrated Bulletin 141.

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DRILLING AND REFINING OPERATIONS IN COLOMBIA DURING PAST YEAR

By James Terry Duce
Consulting Geologist, The Texas Company*

There were no important changes in the producing situation in Colombia in 1930, because the emergency bill passed by the Colombian Congress in 1927 is still in effect, and therefore no change has taken place in the law governing petroleum.

At the close of 1930 the Colombian Congress began to consider a new petroleum bill. This measure is an improvement on the preceding bills which had been the subject of so much debate in the congress. However, it cannot by any means be regarded as perfect, and a number of criticisms may be justly leveled at it. The most substantial one probably is that the royalties on public lands, and the taxes on private lands, while apparently low, are deliverable at seaboard, or payable based on seaboard price at the option of the government. If the government exercises its option to take the oil at the mouth of the well, the cost of the transportation figured back into oil is also deliverable to the government. This phase of the law has the effect of making seemingly low royalties a burden on the operator. The fact that taxes on private properties are deliverable in kind is also an unusual provision for which there is no good precedent.

The pipe line provisions are also noteworthy, and the government has authority to fix rates and also to deny permits to construct pipe lines for reasons affecting national economy. There are also clauses enforcing unit operation on both public and private lands, and collecting a tax of 1 cent per 1,000 feet of gas wasted.

It remains to be seen whether this bill will be enacted, or whether it will be substantially modified. This much may be said, however, that unless it is modified, it will defeat its own purpose; that is, promotion of petroleum development in Colombia.

Company Activities

The South American Gulf Oil Co. shut down its operations during the year, and now employs only watchmen at its camps, Las Monas and El Tigre. The Standard Oil Co. of California continued operations on the coast at Repelon and Gualapa. At the close of the year No. 3 Repelon was 3,025 feet, No. 2 Gualapa, 4,468 feet. Both wells had showings of gas but nothing to indicate substantial production. Texas Petroleum Co. did only geological work, and the same may be said of Sinclair Oil Co.

There was some activity on the part of a French group, which culminated in its being granted concessions "ad referendum" by the then Minister of Industry, Senior Montalvo. As these concessions had to be approved by Congress and the President by the close of 1930, in order to be valid, and this approval was not secured, they are now void.

The production of Tropical Oil Co. for 1930 was 20,345,916 bbls., of which approximately 391,532 bbls. were petroleum condensate. The daily average delivery for pipe line runs to seaboard was 52,291 bbls. The total volume of crude run at the Barranca Bermeja refinery during the 10 months ending October 31 last, was 1,073,441 bbls., with refined products as follows: Gasoline, 251,926 bbls.; kerosene, 48,596 bbls.; gas oil, 30,374 bbls.; lubricating oil, 12,618 bbls.; cylinder oil, 2,738 bbls.; fuel oil, 711,563 bbls.

The total number of producing oil wells completed during the year was 112, with an average initial production of 697 bbls. per day. It may be said in passing that the quantity of oil produced by these wells is remarkably constant, and that because of the care the Tropical Oil Co. is taking, there is very slow decline in production. All gas not used in operations is returned to the key wells for repressuring the field. The field is now operated electrically, and in all respects is a model. The Tropical Oil Co. is continuously engaged in experimental work in the fields.

No New Wildcat Discoveries

There have been no new wildcat discoveries of importance on the company's concession, with the exception of the Mugrosa well. One of the wells on the Colorado extension of the Infantas structure was abandoned at 6,180 feet as a dry hole. Wells Nos. 1 and 3 on the San Luis structure reached something over 5,000 feet and stopped in black shale of lower Cretaceous age without discovery of oil in commercial quantities.

Consumption of products derived from petroleum has suffered seriously within the country on account of the financial depression, and this particularly affected the sale of fuel oil to the river boats.

Regarding the future, production in Colombia will depend upon legislation and improvement in the general economic conditions affecting the oil industry.

The present administration has shown a sincere desire to co-operate in the development of Colombian resources, and should suitable legislation be passed and settlement of controversies effected, it is probable that Colombia's production will continue to increase, and with the development of the petroleum industry will come the development of all other industries in that country.

In closing, I would like to pay my respects to the President of the Colombian Republic, His Excellency Dr. Enrique Olaya Herrera, one of the outstanding statesmen in South America, who is handling ably and with foresight a difficult economic situation.

I wish to thank the following persons for information contributed to this report: Samuel Haskell, Texas Petroleum Co., Bogota; W. H. Heroy, Sinclair Exploration Co. of New York; R. C. Stoner, Standard Oil Co. of California; A. M. McQueen, International Petroleum Co., Canada; Captain Flanagan, Andian National Corp.; and W. Wallace, South American Gulf Oil Co., New York.

*Before A.I.M.E. New York. Copyright 1931, by A.I.M.E.

SUMMARY OF STATEMENTS MADE FEBRUARY 10, 1931, RELATING TO BUSINESS OF VARIOUS PIPE LINES FOR MONTH ENDING JANUARY 31, 1931

	Gross stocks	Runs from wells	Other receipts	Regular deliveries	Other deliveries
Nat Transit	839,235.79	127,013.27	972,032.25	431,427.59	619,260.61
S W Pa. P. L.	432,473.26	75,179.62	555,663.64	311,121.19	330,248.94
Eureka P. L.	1,548,201.04	292,615.52	396,746.20	333,443.59	307,074.98
Buckeye P. L. (Macksburg)	597,544.40	311,385.14	115,220.34	257,687.49	212,397.38
Buckeye P. L. (Lima, etc.)	4,554,991.51	91,601.51	1,943,014.77	1,121,462.88	763,252.19
Buckeye P. L. Cleveland)	54,263.96	11,175.80	166,047.00	1,462.63	159,158.73
Indiana P. L.	562,567.51	3,805.02	1,079,556.12	644,291.15	463,930.97
Cumberland P. L.	423,458.27	174,361.92	203.34	109,598.07	37,626.79
Southern P. L.	265,515.03	.....	273,693.34	45,326.45	233,236.77
Bradford Trans.	152,811.37	310,660.96	.....	364,390.68	.....
N. Y. Transit	161,624.59	27,836.13	176,826.40	174,756.42	2,461.56
Northern P. L.	368,986.82	.....	363,458.64	230,180.55	274,864.69
Tide Water Pipe	979,269.83	25,747.99	.....	536,454.77	.....
Tuscarora Dev.	44,447.96	.....	.....	489,729.45	.....
Total Jan. 31	1,155,391.34	1,451,882.88	6,036,462.04	5,071,232.91	3,403,503.61
Total Dec. 31	11,223,810.37	1,447,913.37	4,681,971.37	4,058,288.72	2,997,102.07
Difference	68,419.03	3,969.51	1,354,490.67	1,012,944.19	406,401.54

PETROLEUM DEVELOPMENT IN PERU MOSTLY IN THREE OLD FIELDS

By Oliver B. Hopkins
Chief Geologist, Imperial Oil, Ltd.*

Activity in the oil industry in Peru during 1930 was confined almost entirely to the three old producing fields in the northern coastal area. In the eastern part of Peru, in the valleys of the Maranon, Ucayali and Huallaga Rivers, additional geologic work was carried on, but no drilling was undertaken.

The Peruvian Government granted a concession on June 27, 1930, to W. R. Davis and associates for the building of a railroad from the west coast at Bayovar to Yurimaguas on the Huallaga River. This concession contemplates the construction of 800 to 900 kilometers of railroad across the Andes and carries with it a grant to the concessionaire of 12,500,000 acres of land with oil and mineral rights. A similar concession was granted in 1926 but after several extensions was rescinded in July, 1929, on the grounds that the concessionaire had failed to begin work on the railroad within the time limits of the contract and its extensions.

The production in barrels from the three coastal fields of Peru has been as follows:

	1929	1930
International Pet. Co.	10,821,117	9,766,922
Lobitos Oilfields, Ltd.	2,508,901	2,613,511
Zorritos	*75,000	*78,000
Total	13,404,208	12,459,060

*Estimated. No definite figures available.

Although not large, the Peruvian production has been steady during the past years. The reduction of approximately 8 per cent in 1930 as compared with 1929 is the result of the world's overproduction and the attempt on the part of the International to restrict the output to conform with the available market.

International Petroleum Co.

International Petroleum Co. owns the oldest producing property in Peru. The first well was drilled there in 1872. The cumulative production from the property from 1900 to 1930, inclusive, has been over 92,000,000 bbls. from an area of 15,000 acres. The recovery per acre has varied from 1,000 to 11,000 bbls. More than 2,700 wells have been drilled on the property, of which some 1,800 were producing at the end of 1930. The wells have an average depth of 1,500 to 1,800 feet and an average initial production of approximately 200 bbls. The production is derived from formations of Eocene and Oligocene age. The gravity of the oil produced averages about 35° A.P.I.

The property is being operated as a unit in a modern manner. No gas is being wasted; such gas as is not required for fuel is used for repressuring. At present approximately 50 per cent of the gas produced is being returned to the sands, with excellent results. From the plants handling the gas, some 30,000,000 gallons of casinghead is being produced annually. Of a daily production of 27,700 bbls. of oil during 1930, approximately one-half was refined in the company's plant at Talara, somewhat more than one-fourth was shipped to the Argentine and the remainder was divided between Canada, the United States and Europe. At the close of 1930 the company had a shut-in production of 40,000 bbls.

Lobitos Oilfields, Ltd.

The two producing fields of the Lobitos Oilfields, Ltd., are near Lobitos and Cabo Blanco and represent the northern continuation of the same productive formations found on the property of the International Petroleum Co. On both properties the oil is obtained largely from formations of Eocene age.

The production from the Lobitos property has been fairly uniform for some years. Both the producing fields are on the coast. Wildcat drilling inland to the east and northward has failed to open new producing areas.

The average daily production for the past four years has increased from 6,185 to 7,160 bbls. The footage drilled has amounted to 100,000 to 177,000 feet. All the oil produced by the Lobitos is shipped abroad.

Oil Fields at Zorritos

For many years there has been a small oil production, from beds of Miocene age, at Zorritos, a point on the coast near the northern frontier of Peru. The production for 1928, the last year for which we have definite data, was 89,061 bbls. The estimated production for the past two years is somewhat less, amounting to 75,000 and 78,000 bbls. All the oil produced is refined locally and sold along the coast, mainly in Lima.

*Before A.I.M.E. New York. Copyright 1931, by A.I.M.E.

EASTERN FIELDS

(Continued from Page 62)

ler district, the Chartiers Oil Co. has a rig standing for a test on the W. W. Large farm, and is down to 4,303 feet in its second well on the Anna Streuber farm.

In Logan County, the West Virginia Gas Corp. is clearing a location for a well on the Dingus Run Coal Co. tract. In Mason County, the E. C. Moffett Drilling Co. has two wells drilling on the William Newton heirs' farm in Graham district, and the Hartford Salt Works Co. has made a location for a test on the Burt Sayre farm in Cooper district. In Greebrier County, the Thompson Harris Co. is down to 1,940 feet in a test on the Samuel Hinkle farm in Williamsburg district. In Harrison County, J. W. Johnson and others are down to 900 feet in a test on the J. E. Morris farm in Ten Mile district, and the Furner Oil Co. has reached 2,400 feet in No. 8 on the John Furner farm. In Coal district, same county, the Washington Gas Co. is drilling its test on the E. D. Fittro farm deeper and has reached 2,374 feet, and in Union district, the Reserve Gas Co. is at 2,702 feet in its No. 112 on the Albert Shinn and others' farm, which is also being drilled deeper.

In Clay County, the Pure Oil Co. is at 650 feet in a second test on the Henry Markel farm, Henry district. In the same district, the Thompson Gas Co. has reached 850 feet in its test on the Cochran and Eakle lease, and 1,650 feet in No. 3 on its own land. The United Fuel Gas Co. is at the 1,000-foot level in its No. 4,266 on the W. S. Pierson farm, same district. In Pleasant district, Godfrey L. Cabot has two wells drilling both on the Hill-Long property. In Ceredo district, Wayne County, W. P. Floyd is down for shot at 2,689 feet in his test on the J. H. and J. B. Start farm. In Grant district, Marion County, the Owens Illinois Glass Co. has a rig standing on the Joseph Orth farm.

SOUTHWEST PENNSYLVANIA

There was little completed work in the Southwest Pennsylvania district during the past week. One completion was reported and that was a dry hole. In Summit Township, Butler County, Linsey & Co. drilled a test well on the Linsey heirs' farm to a depth of 1,550 feet and found no showing.

In Washington County, William Dillemeyer & Co. have reached 1,985 feet in a test on the George Dunbar farm in Cross Creek Township. In Amwell Township, the Carnegie Natural Gas Co. is down to 2,440 feet in a test on the Frank Moniger farm, and in West Bethel Township, W. B. Redd & Co. have reached 1,600 feet in a test on the Thadius Crile farm.

In Greene County, the Peoples Natural Gas Co. is shut down testing for gas in its test on the F. B. Haines farm in Perry Township. In Center Township, J. B. Orndoff has a rig standing for a test on the J. E. Scott farm.

ROCKY MOUNTAIN AREA

(Continued from Page 44)

trouble has delayed the making of new hole.

The Badger Basin Oil & Gas Co., which drilled to 750 feet in 1928 in its No. 1 Kent, SW cor., Section 2-2n-57, and then shut down to finance, held a meeting at Fort Morgan recently and elected A. J. Dickerman, president; S. M. Smith, vice president; G. C. DeHaven, secretary; and F. A. Trumbo, treasurer. The company has 5,550 acres under lease and is making plans to resume operations this spring.

Park County

South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, Jefferson district, is bottomed at 1,810 feet and pulling 8¼-inch to clean out and rerun. At this depth it had a good show of non-inflammable gas. An analysis failed to show any helium content. It was mostly nitrogen.

Grand County

Oil & Mineral Lands, Inc.'s No. 1 McElroy, SE SW, Section 14-2n-81, Kremmling structure, has commenced spudding and is bottomed at 70 feet. It started in a 15½-inch hole with the Dakota at 3,500 feet as the objective.

Moffat County

Mountain States Fuel Supply Co.'s No. 2 State, SE NE, Tract 37-12n-100, Hiawatha Dome, is drilling at 2,065 feet in hard sand. It showed a little oil and gas at 1,915 feet, which was cased off.

Montrose County

Uncompahgre Oil & Gas Co.'s No. 1, SW NW, Section 27-50-10, which had a good show of oil in the upper Sundance at 1,982-92 feet, was unable to shut off water from above and has made a deal with W. A. Vanderpool to drill another well half a mile to the southwest. A standard rig used to drill several years ago in the Paradox Valley has been purchased.

Montezuma County

G. H. Talcott and others' are reported moving in a rig to drill 5 miles south of Cortez, near the entrance to McElmo Canon, 12 miles southeast of the test drilled in 1922 by the Midwest Oil Co. The Midwest well had several shows of oil and gas and was abandoned at 4,588 feet.

NEW MEXICO

Operators in the Hobbs Pool, headed by E. G. Allen, chairman of the executive committee in charge of proration, met with Governor Seligman at Santa Fe the past week to renew the conference held last month to discuss the oil situation as it applied to the Hobbs operation. It will be recalled that last month the operators and Commissioner Hinkle, of the land department and E. H. Wells, state geologist, reached an agreement under which proration was extended for six months from January 10 and the allowable outlet placed at 32,500 bbls. daily. This was followed by Governor Seligman calling the operators into another conference at which he expressed dissatisfaction with the agreement because it did not fix a minimum outlet and did not provide for marketing as large a quantity of oil as he believed the State was entitled to. The conference adjourned for a month at which time the governor said he would expect the operators to guarantee a minimum output. The meeting this past week was informal and a full discussion of the situation took place. Recent developments in East Texas, it was pointed out, indicated a gigantic new market which would come into direct competition with West Texas and New Mexico fields and that the policies of the operators in the new field had not yet been determined. With 40-cent oil in East Texas moving to the Gulf Coast, New Mexico, it was declared, was fortunate in getting 74 cents for its crude and under existing conditions, was faring very well. The conference, which was informal, adjourned without taking any action and it is not anticipated that any changes in the Hobbs agreement will be made at this time.

Caprock Area—Lea County

The Western Drilling Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, in western Lea County, in which The Texas Company has an interest, continued this week to be an outstanding development in that State. Oil was encountered two weeks ago at 4,688 feet and at 4,694 feet it rose 1,000 feet in the hole in one hour. At 4,707 feet it had increased to 2,785 feet. Drilling continued to 4,757 feet at which depth the oil stood 3,750 feet. Swabbing failed to lower the oil below 3,000 feet. It swabbed and flowed 102 bbls. in three hours in the first test. The oil tests 31.5 degrees gravity.

A new operation in this area is the Explorers Syndicate's No. 1 State, C NE, Section 22-18-34, this being a location for a 5,000-foot test.

Hobbs Area—Lea County

The only operations in the proven area of the Hobbs Pool are the Gypsy Oil Co.'s No. 7 Grimes, SE NE NW, Section 32-18-38, which is drilling at 1,345 feet after cementing 13⅜-inch at 195 feet, and Midwest Refining Co.'s No. 8 Terry, C NW NW, Section 9-19-38, which is waiting for proration test at a total depth of 4,192 feet.

National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, 4 miles west of production, is drilling at 4,103 feet in lime. It had a small show of gas at 3,881 feet and a show of oil at 3,913 feet. Western Drilling Co.'s No. 1 State, C SW NE, Section 15-18-37, joint with the Republic Production Co., to the northwest of the Hobbs Pool, has rig completed.

Eunice Area—Lea County

Continental Oil Co.'s No. 1-A Lockhart, NE cor., Section 18-21-36, is bottomed at 3,990 feet and is shut in while a treating plant is bieng built. It made 35 bbls. of fluid per hour, of which 40 per cent was water. A gauge showed 422 bbls. of oil, plus the water, on February 4 and 395 bbls. the next day. On the sixth it dropped to 192 bbls. The same company's No. 2 A. E. Meyers, SE cor. NW, Section 17-21-36, which recently was reported a completion at a total depth of 3,992 feet, was shot with 200 quarts at 3,910-73 feet and made 102 bbls. the first 7½ hours after the shot. An effort is being made to lower the tubing to bottom. Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17-21-36, is bottomed at 3,795 feet and is rigging up cable tools. California Co.'s No. 1 Meredith, SE cor. NE, Section 19-21-36, is standing with the 9⅝-inch cemented at 3,000 feet. It bottomed the salt at 2,890 feet and topped the brown lime at 2,980 feet.

Lovington Area—Lea County

Western Drilling Co.'s No. 1 State, NE cor. SE, Section 13-17-36, is bottomed at 165 feet in the red beds and rigging up rotary. The 15½-inch froze at 161 feet.

Miscellaneous—Lea County

Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea area, is drilling at 445 feet in the red beds.

Eddy County

Flynn, Welch & Yates' No. 59 State, NW cor., Section 5-19-28, Artesia area, is drilling at 1,710 feet in gypsum and red beds.

Chaves County

Warman Oil Trust's No. 1 Seibert, NE, Section 27-13-24, is bottomed at 2,043 feet and reaming 5⅞-inch.

Mora County

Fulton Petroleum Co. is moving in for its No. 1 Santa Fe-Dioice Co., NE cor., Section 14-19-21, 6 miles north of Wagonhound. This is to be drilled for carbon dioxide gas to be used in the manufacture of dry ice. The company is now operating a small dry ice plant in Utah and has plans for another in western Colorado.

Curry County

Cockerill and others' No. 1 Bruner, C N half NE, Section 15-2n-31, which has been shut down for several months at 960 feet, is reported abandoned at that depth.

San Miguel County

Starr Oil Co., Ltd.'s No. 3 Adams, NE cor., Section 25-17-17, Dunken district, is drilling below 3,350 feet with 6⅝-inch set at 3,250 feet. Pioneer Oil Co.'s No. 1 Montezuma, SE cor. NW, Section 14-15-16, is shut down in pink shale at 2,340 feet. Hershfield Oil Development Co.'s No. 1 Cabra Springs Ranch, NE, Section 21-12n-22, is reported shut down at 1,735 feet to finance. Con-O-Kul Oil Co.'s No. 1 Stephensen, NW cor. NE, Section 34-17-21, is fishing for tools at 180 feet. Cibola Petroleum Petroleum Co.'s No. 1 Larazola, SW cor. NE, Section 9-13n-14e, Ribera district, is trying to get 10-inch on bottom at a total depth of 755 feet.

Valencia County

Thomas B. Harlan and others' No. 3 Harlan Ranch, NW cor., Section 5-6n-2e, is drilling at 5,830 feet in shale, and Acme Development Co.'s No. 1 Santa Fe, SW NW, Section 27-7n-4w, is bottomed at 5,065 feet and underreaming 5⅞-inch.

San Juan County

San Juan Leaseholds Co.'s No. 3 Bowman, NW NE, Section 30-30-15, Meadows district, has overcome its bad hole troubles and is drilling ahead at 2,595 feet. Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is drilling below 2,300 feet. Continental Oil Co.'s No. 24, SW cor. NW, Section 1-29-19, Rattlesnake Dome, is bottomed at 4,730 feet and waiting on fishing tools.

Luna County

Angelus Oil & Mining Co.'s No. 3 State, NW SE, Section 20-21-10w, near Deming, is drilling at 6,012 feet in sandy shale.

MONTANA

Toole County

International Royalty Holding Co.'s No. 1 Henry, SW cor., Section 26-35n-3e, Grandview district, which encountered sulphur water in the Madison contact at 2,590 feet, is being abandoned at a total depth of 2,650 feet. Liquid Gold Oil Co.'s No. 1 Roberts, C NW NE, Section 25-36n-1e, Barthelote district, is drilling at 1,900 feet. Nepstad-Vander-Pas' No. 1 Hoyt, C NE NW, Section 14-32-2w, Kevin-Sunburst Field, has rig up, and Johnson and others' No. 1 Lutz, C NW NW, Section 34-33n-2e (corrected), has rig up.

Liberty County

Western Natural Gas Co.'s No. 1 Poindexter, C SE SE, Section 17-37-4e, Whitlash district, is drilling at 200 feet. Rig was moved from No. 2 McHoney, recently completed as a gas well.

Hill County

Jones-Rice-Perkins' No. 1 Roebuck, NW cor. SE, Section 28-33n-12e, is drilling at 400 feet. This is first report on this operation.

Mussellshell County

Minnesota-Flatwillow Oil Co.'s No. 1 Ivanhoe, SW cor., Section 7-13-26, is drilling at 2,500 feet.

Glacier County

B. & H. Oil Co.'s No. 1 Haines, C SE SE, Section 2-34-6w, Cut Bank district, which had a show of oil at 2,761-62 feet, is swedging 8¼-inch to bottom at 2,762 feet.

Cascade County

Andover Oil Co.'s No. 1 Floweree, NW cor. SE, Section 20-21-2w, Big Coulee, is shut down at 1,505 feet.

Rosebud County

Prairie Oil & Gas Co.'s No. 1, Contract 4, SE SW SW, Section 28-11n-39, Porcupine Dome, is shut down at 1,360 feet, and its No. 1-X, Contract 3, NE SW NW, Section 26-10n-39, is bottomed in sand at 2,290 feet and underreaming at 2,270 feet.

Carbon County

Ohio Oil Co.'s No. 1 Montana Industrial, SW NE, Section 11-7s-21, Dry Creek, is drilling at 2,730 feet, and its No. 1 Souders, C SW SW, Section 2-7s-21, is fishing for bit at 1,035 feet.

Rocky Mountain Production

Average daily runs from fields week ending February 21:

WYOMING

Salt Creek	26,910
Big Muddy	1,930
Byron	10
Cody	10
Dallas-Derby	270
Dutton Creek	120
Elk Basin	680
Ferris	10
Frannie	920
Grass Creek	2,000
Greybull	10
Hudson	460
LaBarge	1,550
Lance Creek	180
Lost Soldier	4,340
Lovell	10
Midway	130
Oregon Basin	1,920
Osage	1,600
Rock River	1,970
Poison Spider	270
South Casper	200
Teapot	20
Warm Springs	....
Total Wyoming	45,520

MONTANA

Buckley Border	680
Cat Creek	1,100
Dry Creek	720
Kevin-Sunburst	4,500
Lake Basin	70
Pondera	2,290
Total Montana	9,360

COLORADO

Florence	400
Fort Collins	1,080
Iles	960
Orchard	400
Moffat	1,080
Rangely	50
Tow Creek	330
Total Colorado	4,300

NEW MEXICO

Rattlesnake	1,150
Hogback	440
Table Mesa	80
Artesia	650
Cap Rock	514
Getty	92
Hobbs	31,795
Jal	1,115
Lea	2,163
Eunice	2,895
Texas Pacific area	74
Total New Mexico	40,968
Total Rocky Mountain	100,148
Total previous week	97,998
Difference	2,150

WYOMING

Natrona County

Midwest Refining Co.'s No. 11, SE NW NW, Section 32-34-77, Geary Dome, is standing with 9⅝-inch casing cemented at 5,331 feet after going through the second Wall Creek sand at 5,309-14 feet. The sand showed a little gas only. It is possible that another bench of this sand may be encountered below the present bottom at 5,340 feet. The hole will be carried on down to test the Dakota series. The same company's No. 11 Middy, C NE NE, Section 23-35-79, the discovery well in the second Wall Creek on the Midway Dome, was shot twice with 10 quarts at each shot in the sand at 5,162-5,207 feet and the well responded with an increase in production up to 100 bbls. and then settled back to around 60 bbls.

Fremont County

Producers & Refiners Corp.'s No. 10, NW cor. SW, Section 14-32-95, Big Sand Draw, was cored to 4,530 feet and is reaming at 4,523 feet. It had a very heavy flow of gas in the Morrison sand at 4,294-4,386 feet. This is the first well on the structure to get through the heavy gas sands in the Frontier and test lower formations. Big Horn Oil Co.'s No. 1 Gabus, SW cor., Section 14-38-94, 2 miles northeast of Shoshoni, is drilling at 1,500 feet. Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW, Section 22-3n-1w, Pilot Butte, which opened a new gas field on the Pilot Butte structure, has been completed and shut in. Several months ago this well was plugged back to the Muddy at 3,365 feet and built up a flow of 100,000,000 feet a day. The open flow was better than 80,000,000 feet. The Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is sidetracking 60 feet off bottom. Total depth is 4,485 feet.

Washakie County

Ohio Oil Co.'s No. 1 Strothers' SW SE NW, Section 19-45-92, Neiber Dome, which is to be drilled to at least 7,000 feet under a contract with Grebo Royalties, Inc., has let the drilling contract to the Noble Drilling Co., which is moving in a rotary.

Big Horn County

Ohio Oil Co.'s No. 1 Smith, Lot 61, Section 33-56-97, Garland Dome, is drilling at 950 feet.

Converse County

Ohio Oil Co.'s No. 5 Jones, NE NE, Section 9-33-76, Big Muddy, a test to the Lakota, is bottomed at 4,270 feet, in the top of the Dakota, and is fishing for core bit. It is showing some oil. Weisman Big Muddy Oil Co.'s No. 1, SW SE, Section 6-33-76, after finding water in the Frontier, is plugging back to a shale horizon at 2,500 feet which showed for a 40-bbl. well.

Niobrara County

Argo Oil Co.'s No. 1 Elliott, Section 5-35-65, Lance Creek, a producer in the Big Muddy at 2,922 feet, is being deep-

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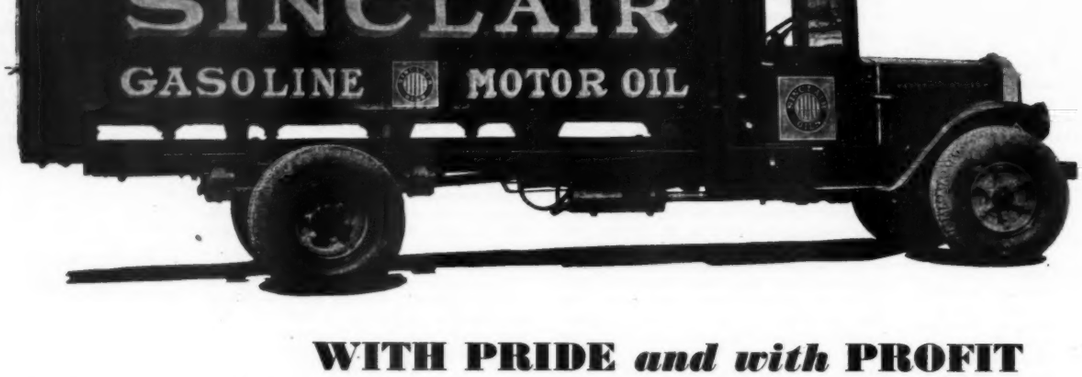

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ened to the Lakota. The 6¼-inch was set at 2,946 feet. Ohio Oil Co. has a core drill at Orin Junction which is to be used to work out the geology on a tract of 1,500 acres just east of the block recently acquired by the Phillips Petroleum Co.

Johnson County

Kaycee Dome Syndicate's No. 3, C SE SE, Section 4-43-82, Kaycee Dome, which has been shut down at 2,150 feet in the top of the Madison lime, is preparing to drill on down to a second break expected within the next 200 feet.

EAST CENTRAL TEXAS

(Continued from Page 49)

Teague Station in Freestone County to the Joiner area, and may lay a lateral line to take crude from that field.

The N. A. Saigh Construction Co. has completed work on the 3-mile 6-inch line of the Sinclair-Texas Pipe Line Co. from the Sinclair Oil & Gas Co.'s Holland lease in the Joiner Field to a 40-car loading rack at Friar Switch on the I.&G. N. Railroad and is running oil through this line, although at present it is connected to another loading rack from which oil is being shipped out to the Sinclair Refining Co.'s refinery at Houston.

Several other small lines are contemplated for the Joiner Field, one to be laid by W. D. Anderson of Fort Worth and associates to Overton where a small skimming plant is to be constructed.

Walter Rollins, of the Crown-Central Refining Co. has also been reported as planning a line from this field to a loading rack and possible plant at Overton.

It was formerly reported that the Humble Pipe Line Co. would extend its 8-inch line from the Kilgore Field to the Joiner Field, or perhaps lay another line from the latter field to Boggy Creek in Anderson County from which place a line runs south connecting with a trunk line at Mexia which runs southeast to the Gulf Coast.

As yet construction has not been started on a casinghead gasoline plant by the East Texas Refining Co. or any other company in the Joiner Field, and it is now doubtful just when plans for such a plant will materialize. Lack of gas in the completed wells is retarding growth of such plans, although such a plant has been contemplated and may be constructed in the future.

The lease play continues north and northeast in Harrison and Marion Counties, and has switched from that area to a certain extent down south and southeast through the north and northeastern part of Nacogdoches, and this latter county is seeing an extensive play with many blocks being taken, along with checkerboard acreage, and the contracts for several wells being signed. Brokers, operators and companies are following the old shore line to the northeast and southeast, and all available acreage is being leased at various prices, according to the various kinds of contracts being made for the acreage.

CALIFORNIA HAS NEW CURTAILMENT PROGRAM

(Continued from Page 22)

duction between the properties should be made in accordance with the average potential per well for the property multiplied by the respective number of proven acres held in this sector. This provision is not designed to require the reduction of allowable production regularly assigned to a small property but to prevent a large property from concentrating its production in the drainage sector to an unfair degree. Examples of fields referred to in this paragraph are Belridge, Kettleman Hills and Lost Hills.

"If necessary in order to enable a major purchasing company to maintain a fair proportion of total production in the State to total purchases in the State exceptions should be made in the exact applications of these principles in any field where such position can be helped and where the consent of the interested parties in such field can be obtained. This committee cannot too strongly urge the co-operation recommended for the new fields mentioned as their operation in the old individual manner threatens disastrous waste, both physical and economic. This is particularly evident from the difficulty of controlling the amount of production on an individual well basis under conditions such as those at Kettleman Hills where pressures may be too high to permit the curtailment necessary leaving the killing of many wells the only alternative to extremely wasteful production."

The detailed report which is to be submitted for consideration by the general committee is one which should receive careful consideration as the threatening condition resulting from drilling in the Lost Hills, Belridge and Kettleman Hills Fields is far greater than many anticipate. The threat presented by these fields is so great that operators in other lesser productive fields should welcome the application of any constructive curtailment program, especially where the methods of application are uniformly fair.

W. L. MELLON STATEMENT

The following statement from W. L. Mellon, president of the Gulf Oil Corp., is self-explanatory:

"Answering inquiries regarding rumors of negotiations for the merger of the Gulf companies with the Shell organization, I desire to state, once and for all, that no such negotiations are pending, that no such negotiations have heretofore taken place and that no deal of any character for combining or affiliating the two enterprises or for the acquisition of one by the other has ever been considered by Gulf interests.

"No reflection whatever on the Shell companies is intended, but I would like to put an end to reports which are utterly baseless. Their persistent circulation looks like pernicious propaganda."

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 49)

Burton Drlg. Co.'s No. 1 Florez, 2,250 ft. from N and 150 ft. from W of SE cor. Peter Holmes Sur. ..... Drlg. 1,200 ft.

Universal Oil & Gas Mining Co.'s No. 1 J. T. Brown, 150 ft. from E and 150 ft. from S of N 36-ac. tract, M. J. Prue Sur. ..... Drlg. 3,635 ft.

Burton Drlg. Co.'s No. 1 Clark (Florey), 172 ft. E and 2,282 ft. S of Peter Holmes Sur. ..... Base Pecan Gap 3,070 ft.; drlg.

Capp & Smith's No. 1 J. L. Cochrane, 150 ft. from E and 150 ft. from SE cor. of Cochrane tract, Jacob Roth Sur. ..... Shut down 3,470 ft.

Roy I. Carter's No. 1 Mayfield-Alford, 150 ft. N and 200 ft. W of most northern NW cor. of 105-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,470 ft.; base Pecan Gap 3,006 ft.

Roy I. Carter's No. 2 Mayfield-Alford, 192 ft. from S and 200 ft. W of Carter 20-ac. lease, Juan Ximenes Sur. ..... Rig up.

Pilot Oil Co.'s No. 1 A. P. Finney, 150 ft. from E and 150 ft. S of Finney 105-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,165 ft.; top Pecan Gap 2,600 ft.; base Pecan Gap 3,023 ft.

Cranfill & Reynolds' No. 1 Calvin Young, 275 ft. from E and 1,780 ft. from S of Young 300-ac. tract, M. J. Prue Sur. ..... Rig up.

E. L. Chapman's No. 1 A. P. Finney, 150 ft. from W of E 20 acres of 102-ac. tract, Isaac G. Parkey Sur. ... Derrick.

Cordova Union Oil & Land Co.'s No. 1 C. O. Christian, 150 ft. N and 171 ft. W of Christian 36-ac. tract, Robert E. Winn Sur. ..... Drlg. 3,005 ft.; top Pecan Gap 2,632 ft.

George Demonstrend's No. 1 J. A. Birdwell, 150 ft. N and 150 ft. E of Birdwell east 72-ac. tract, M. J. Prue Sur. ..... Spudded and shut down.

Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E and 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.

East Texas Oil Co.'s No. 1 C. D. Ashby, 856 ft. N and 1,774 ft. from W of Ashby 119-ac. tract, Juan Ximenes Sur. ..... Drlg. 1,415 ft.

Elsy Drlg. Co.'s No. 1 W. M. Camp, 150 ft. N and 171 ft. from E of Camp 38-ac. tract, Juan Ximenes Sur. ..... Drlg. 905 ft.

Foster Oil Co.'s No. 1 Camp ..... Oil sand 3,606-20 and 3,625-40 ft.; initial prod. 2,000 bbls.; total depth 3,642 ft.

Federated Oil Co.'s No. 1 Laird, 150 ft. from S and 1,321 ft. from W of Laird 55-ac. tract, Isaac Ruddle Sur. ..... T. D. 3,629 ft.

Foster and Deep Rock's No. 2 Ashby, 150 ft. W and 45 ft. S of Aiken & Rayzor's No. 1 Ashby, Juan Ximenes Sur. ..... Drlg. 2,130 ft.

Haynes Drlg. Co.'s No. 2 Brown (Minor on map), 150 ft. from E and 150 ft. from S of Brown 76-ac. tract, M. J. Prue Sur. ..... Top Pecan Gap 2,743 ft.; base Pecan Gap 3,074 ft.; drlg. 3,569 ft.

Karona Oil Co.'s No. 1 Peterson, located in Robert E. Wynn Sur., 150 ft. out of NW cor. of Peterson 50 acres ..... Drlg. 3,445 ft.

Humble Oil & Ref. Co.'s No. 1 Ben Laird, 150 ft. N and 1,319 ft. W of Laird 100-ac. tract, Isaac Ruddle Sur. ..... Drlg. 2,245 ft.

Humble O. & R. Co.'s No. 2 L. D. Crim, 1,826 ft. N and 150 ft. S of Sevier Sur. in the L. G. Sevier Sur. ..... Top Pecan Gap 2,610 ft.; base Pecan Gap 3,110 ft.; coring 3,689 ft.

Humble Oil & Ref. Co.'s No. 3 L. B. Crim, 2,438 ft. from E and 194 ft. S of Sevier Sur. ..... Drlg. 2,687 ft.; top Pecan Gap 2,615 ft.

Hunt's No. 2 Bradford, 1,320 ft. from E and 150 ft. from S of Blk. No. 12, Juan Ximenes Sur. ..... Will standardize and drill deeper.

H. L. Hunt's No. 3 Ashby, 221 ft. from N and 2,530 ft. from W of 125-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,375 ft.; base Pecan Gap 3,543 ft.

H. L. Hunt's No. 4 Ashby, 221 ft. from N and 150 ft. from W of most northern NW cor. of Ashby 125-ac. tract, Juan Ximenes Sur. ..... Base Pecan Gap 2,974 ft.; drlg. 3,556 ft.

H. L. Hunt, trustee's No. 1 Mayfield-Alford, 200 ft. from N and 200 ft. from W, Juan Ximenes Sur. .... Drlg. 2,220 ft.

E. M. Jones et al's No. 1 W. R. Crim, 150 ft. N and 150 ft. W of 50-ac. tract, Robert E. Winn Sur. ..... Cored sand 3,682-95 ft.; made 124 bbls. first 40 minutes and 91 bbls. next 30 minutes through three-quarter-inch choke; total depth 3,995 ft.

A. A. Malone's No. 1 W. W. Camp ..... Location abandoned.

A. A. Malone's No. 1 More ..... Location abandoned.

La-Tex Oil Co.'s No. 1 Major Kennedy, 233 ft. from W of survey and 166 ft. from S line of Kennedy 100-ac. tract, Daniel Clark Sur. ..... Drlg. 1,200 ft.

L. Lloyd Oil Corp. et al's No. 1 Nicey, 150 ft. from S and 300 ft. from W of 25-ac. tract (NW cor. of county), Thomas Obar Sur. ..... Fishing for drill stem 2,535 ft.

E. C. Laster et al's No. 1 B. B. Gray, 1,650 ft. N and 2,425 ft. E of B. B. Gray 228.25-ac. tract, McLain Sur. ..... Drlg.

E. C. Laster's No. 1 Daisy Bradford, 150 ft. from E and 150 ft. from S of Lot 14, Juan Ximenes Sur. .... Set 6-in. csg. 3,487 ft.; waiting on cement.

Luling Oil & Gas Co.'s No. 1 Bright Well (Porter), 150 ft. N and 150 ft. W of Robert Winn Sur. ..... Drlg. 3,400 ft.

Albert M. Griffith's No. 1 J. F. Lowe, 450 ft. from N line and 861 ft. from E and W lines of 100-ac. tract, William William Sur. ..... Spudding.

Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. ..... Shut down 2,338 ft.

Moss & Urschel's No. 1 Mayfield-Alford, 221 ft. S and 200 ft. W of 10-ac. lease, Juan Ximenes Sur. ..... Fishing for drill stem 3,611 ft.

W. Olvey's No. 1 Mrs. W. R. Crim, 150 ft. N and 150 ft. W of lease, Robert E. Winn Sur. ..... Drlg. plug 3,694 ft.

Olsen Bros.' No. 1 Brown, 300 ft. N and 300 ft. W of Haynes' No. 1 Brown, M. J. Prue Sur. ..... Drlg. 3,300 ft.; top Pecan Gap 2,780 ft.; base Pecan Gap 3,067 ft.

Pearl Oil Co.'s No. 1 D. W. Eaton, 975 ft. from most southerly S line of middle tract, and 400 ft. from W line in Francisco Cordova Sur. ..... Shut down 200 ft.

Rusk County Oil Co.'s No. 1 Robertson, 150 ft. N along W line of George Guthrie Sur. from SE cor. and 150 ft. W of E line of Robertson 20-ac. tract, R. H. Pinney Sur. ..... Fishing 1,285 ft.

George Page's No. 1 William Camp, 150 ft. from S and 650 ft. from W of 5-ac. tract, J. Ximenes Sur. ..... Spudded.

Rusco Oil Co.'s No. 1 Daisy Bradford, 150 ft. from E and 330 ft. from W, Lot 13, Juan Ximenes Sur. ... Erecting pumping rig; T. D. 3,634 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E and 150 ft. from S of survey, L. C. Rugg Sur. ..... Shut down 650 ft.

Sinclair O. & G. Co.'s No. 1 W. W. Holland, 150 ft. from S and 197 ft. W of 50-ac. tract, Juan Ximenes Sur. ..... Top Pecan Gap 2,686 ft.; base Pecan Gap 3,046 ft.; drlg. 3,335 ft.

Sinclair O. & G. Co.'s No. 2 Holland, 150 ft. from E and 580 ft. S of lease and Holland 105 acres, Juan Ximenes Sur. ..... Drlg. 2,635 ft.; top Pecan Gap 2,665 ft.

E. E. Tennant's No. 1 Daisy Bradford, 150 ft. E and 400 ft. S of NE cor. of Ashby 38-ac. tract, Juan Ximenes Sur. ..... Running 2½-in. tubing 3,629 ft.

Tennant Receiver's No. 1 Harvey Brooks, 1,200 ft. from N and 150 ft. from W of Brooks 176-ac. tract, M. J. Prue Sur. ..... Waiting on casing; T. D. 166 ft.

Tidal Oil Co.'s No. 1 W. W. Holland, 150 ft. from S and 1,252 ft. from W of Holland 105-ac. tract, Juan Ximenes Sur. ..... Drlg. 3,570 ft.

Warner-Quinlan's No. 1 Camp, 197 ft. from N and 271 ft. from W of Mrs. C. Long 3-ac. lease, Juan Ximenes Sur. ..... Base Pecan Gap 3,040 ft.; drlg. 3,342 ft.

SMITH COUNTY

Guy V. Lewis' No. 1 S. S. Cooke, 150 ft. from E and 150 ft. from S of Cooke 58.5-ac. tract, J. Jordan Sur. ..... Waiting on casing 162 ft.

Thayer & Rogers' No. 1 Willingham, 150 ft. N and W of 14.5-ac. tract, Jacob Hernin Sur. ..... Shut down 2,400 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S. W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona ..... Shut down 3,681 ft.

UPSHUR COUNTY

D. Armand et al's No. 1 Marshall Fluellan, 450 ft. from N and 450 ft. from E of W 50 acres of S 100 acres of Fluellan 417-ac. farm, Marshall Mann Sur. ..... Location.

VAN ZANDT COUNTY

Cranfill & Germany's No. 1 Swain, 137 ft. N and 50 ft. from W of excess strip on W side of O. L. and L. L. Swain farm ..... Shut down 14 ft.

ANNOUNCEMENT

Consolidation of Offices

WE wish to announce to the industry a removal and consolidation of offices of Burford Oil Company and East Texas Refining Company, as follows:

Burford Oil Company's executive offices at Tulsa, Okla., and its office at Pecos, Texas, will be moved to Dallas.

General Offices of East Texas Refining Company will be moved from Henderson, Texas, to Dallas.

All executive, sales, traffic, collection and disbursement affairs of both companies will be handled from our new general offices in the Allen Building.

The Tulsa offices will be closed February 28. The new general offices at Dallas will open March 2.

We make these moves in order to better serve our customers and to operate both the East Texas and West Texas properties more efficiently.

Two New Refineries

MR. F. W. BURFORD announces the organization of the new East Texas Refining Company.

With two new modern refineries—at Henderson, Texas, and Longview, Texas—this company will offer new High-test Gasoline and a high-quality, sweet, water-white Kerosene.

Effective March 2, the company's executive and sales headquarters will be in the Allen Building at Dallas.

This company welcomes inquiries on:

64-66—375 E.P. High-Test Gasoline.
60-62—400 E.P. High-Test Gasoline.
58-60—U. S. Motor.
High-quality sweet Kerosene.
East Texas, 38 gravity high-grade crude oil.
(Two pipe lines and two loading racks for crude oil)

The company's adequate modern facilities, including refineries, pipe lines, and large crude oil producing properties, assure its customers a dependability of supply at all times, and it pledges itself to prompt and efficient service.

BURFORD OIL COMPANY—EAST TEXAS REFINING CO.

General Offices

Allen Building — **Dallas, Texas**

TELEPHONES
Dallas Local - - 78441 and 78442
Long Distance - - - 744 and 745

Refineries: . . . . . **Pecos, Texas** . . . . . **Henderson, Texas** . . . . . **Longview, Texas**

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Temporarily abnd.
Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... Temporarily abnd.
J. C. Fare's No. 1 P. S. Hand, C of Hand's 50-ac. tract, William Shuman Sur. ..... Fishing 5,160 ft.
H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ..... Shut down 2,938 ft.
Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. ..... Temp. abnd. 2,987 ft.
Humble Oil & Ref. Co.'s No. 9 Ruth Starr Blake, 2,340 ft. from E and 620 ft. from N of N line of Pure Oil Co.'s tract No. 2, John Walling Sur. ..... Top Austin chalk 2,200 ft.; base 2,380 ft.; preparing to set 6⅝-in. csg. at 2,441 ft.
Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. ..... Shut down.
Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... Shut down 2,300 ft.
Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Shut down 263 ft.
Pure Oil Co.'s No. 2 A. G. Tunnell, 250 ft. N of S line and 200 ft. W of E line, John Walling Sur. ..... T. D. 2,942 ft.; testing; shut in.
Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick standing.
Pure Oil Co.'s No. 4 W. F. Swain, 250 ft. S of N line and 200 ft. W of E line of lease, Mund Gross Sur. .. Derrick.
Pure Oil Co.'s No. 2 J. D. Miller, 250 ft. N of S line and 250 ft. E of W line of lease in John Walling Sur. ..... Running liner 2,933 ft.
Pure Oil Co.'s No. 6 W. T. Jarman, 344 ft. W of E line and 250 ft. S of N line of 8-ac. tract, Nacogdoches County School Lands ..... Drlg. 1,950 ft.
Pure Oil Co.'s No. 9 A. D. Clark, 200 ft. W of E line and 495 ft. S of N line of lease, John Walling Sur. ..... Drlg. 2,105 ft.
Pure Oil Co.'s No. 2 R. E. Cade, 225 ft. E of W line and 893 ft. N of S line of lease, A. McPhail Sur. .... Drlg. 1,910 ft.
Pure Oil Co.'s No. 12 R. L. Wells, 250 ft. S of N line and 744 ft. E of W line of lease, H. V. Moore Sur. ..... Drlg. 325 ft.
Pure Oil Co.'s No. 4 O. L. Swain, 250 ft. W of E line and 647 ft. N of S line of lease, John Walling Sur. ..... Drlg. 60 ft.
Shell Pet. Corp.'s No. 9 E. L. Fowler, 203 ft. N of S line and 150 ft. W of E line of lease, John Walling Sur. ..... Drlg. 1,545 ft.
Pure Oil Co.'s No. 1 R. A. Enas, 835 ft. E of W line and 150 ft. S of N line of lease, Jackson Thomas Sur. ..... Drlg. 610 ft.
Pure Oil Co.'s No. 4 F. B. Smith, 400 ft. E of well No. 3 and 250 ft. E of W line of lease, John Walling Sur. ..... Drlg. 1,601 ft.
Pure Oil Co.'s No. 3 Ella York, 250 ft. S of N line and 250 ft. E of W line, John Walling Sur. ..... Drlg. 610 ft.
Pure Oil Co.'s No. 1 Frank Blackstock, 88 ft. N of S line and 200 ft. E of W line of lease, John Walling Sur. ..... Drlg. 580 ft.
Roy Stumpff's No. 1 Riggs, 169 ft. from E and 155 ft. from S of 3-ac. tract, William Daniel Sur. ..... Derrick (rotary).
Sun Oil Co.'s No. 2 T. J. Wallace, 250 ft. S of N line and 250 ft. W of E line of lease, John Walling Sur. .. Drlg. 224 ft.
Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. ..... Shut down 1,028 ft.
Vitek Oil Co.'s No. 1 Smith, 150 ft. S and 15 ft. from W of L. A. Smith 40-ac. farm in John Walling Sur... Derrick.
Whitmore Oil & Gas Co.'s No. 1 R. W. Beggs, 300 ft. from S and 600 ft. from W, Raquet Sur. ..... Drlg. 3,637 ft.
Wilson et al's No. 1 Stribling, 1,563 ft. W of E line and 800 ft. S of N line of M. B. Fisher 172-ac. in Phillips Mason Sur. ..... Shut down 1,590 ft.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .... Shut down 997 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 50)

Anderson et al's No. 2 Vollmert, 330 ft. N and W, SW, Sec. 140, Blk. 3, I.&G.N. Sur. ..... Rig.
Beck's No. 1 Sullivan, 330 ft. N and E, W½ NW, Sec. 135, Blk. 3, I.&G.N. Sur. ..... Estimated 30,000,000 ft. gas 2,520-2,650 ft.; 5,000,000 ft. gas 2,845-50 ft; S.D. 2,995 ft.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. ..... Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. ..... S.D. 740 ft.
Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Standardizing 2,850 ft.
Danciger O. & R. Co.'s No. 1 Barnett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur. ..... S.D. 2,996 ft; S.G; to drill in.
Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N, 884 ft. W of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. ..... Estimated 6,000,000 ft. gas 2,997-3,065 ft.; S.O. 3,155-69 ft.; T.D. 3,351 ft.; swng. 30 bbls. a day from lime pay 3,155-69 ft.
Empire G. & F. Co.'s No. 3 Wall, 990 ft. S and W, NW, Sec. 161, Blk. 3, I.&G.N. Sur. ..... Drlg. 900 ft.
Hurst et al's No. 1 Ayres, 330 ft. S and E, Sec. 76, Blk. 3, I.&G.N. Sur. ..... Rotary rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,770 ft.
Kewanee O. & G. Co.'s No. 1-D Morse, 330 ft. N and W. S½ SW, Sec. 16, Blk. A-9, H.&G.N. Sur. ..... Drlg. 400 ft.
Kewanee O. & G. Co.'s No. 1-E Morse, 330 ft. N. and E, S½ SE, Sec. 15, Blk. 9-A, H.&G.N. Sur. ..... Spudding.
Kewanee O. & G. Co.'s No. 3 Smith, 330 ft. N and W, Sec. 149, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,700 ft.
Magnolia Pet. Co.'s No. 1 Barrett, 330 ft. S and E, NE, Sec. 112, Blk. 3, I.&G.N. Sur. ..... Rotary rig.
Magnolia Pet. Co.'s No. 2 Heitholt, 150 ft. S, 1,156 ft. W. SE. Sec. 152, Blk. 3, I.&G.N. Sur. ..... 4,000,000 ft. gas 2,720-45 ft; drlg. 3,150 ft.
Magnolia Pet. Co.'s No. 4 Latham, 300 ft. N. 320 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,265 ft.
Magnolia Pet. Co.'s No. 1 Eddington, 330 ft. N, 370 ft. E, NE, Sec. 34, Blk. B-2, H.&G.N. Sur. ..... To set 6-in. csg. after 8-in. collapsed at 2,625 ft.
Magnolia Pet. Co.'s No. 1 Morse, 330 ft. N and W, S½ NE, Sec. 5, Blk. 26, H.&G.N. Sur. ..... T.D. 2,573 ft.; shot with 40 qts from 2,541-73 ft.
McIlroy Oil Co.'s No. 1 Baer, 330 ft. S and W, Sec. 125, Blk. 3, I.&G.N. Sur. ..... Standardizing 2,645 ft.
Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Fishing for bit; T. D. 2,620 ft.
Operators Royalty & Prod. Co.'s No. 2 Vanniman, 330 ft. S and W, E½ NE, Sec. 175, Blk. 3, I.&G.N. Sur... Set 8-in. csg. 2,787 ft.
Sanders et al's No. 1 Wright, 330 ft. S, 114 ft. E, Sec. 12, Blk. 3, I.&G.N. Sur. ..... Rotary rig.
W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Estimated 4,000,000 ft. gas 3,375 ft; drlg. 3,385 ft.
Southern States Gas Co.'s No. 1 Case, 330 ft. N and W, E½, Sec. 181, Blk. B-2, H.&G.N. Sur. ..... Spudded.
Stanolind O. & G. Co.'s No. 2 Cobb, 330 ft. S and E, Sec. 165, Blk. 3, I.&G.N. Sur. ..... Rotary rig.
Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 1 Webb, 330 ft. S and E, Sec. 12, Blk. 26, H.&G.N. Sur. ..... Rotary rig.
Warner Oil Co.'s No. 1 Morse, 330 ft. S and W, N½ NW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... Cellar.

HUTCHINSON COUNTY

Canadian River Gas Co.'s No. 1 Dunnaway, 330 ft. N, 1,320 ft. E, NE NE, Sec. 5, Blk. Y-2, T.T. Sur. ..... Fishing 1,550 ft.
Continental Oil Co.'s No. 1 Moore, 990 ft. S, 2,276 ft. W, S½ SW, Sec. 21, Blk. M-21, T.C. Sur. ..... Drlg. 500 ft.
Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. S.D. 450 ft. (SLM).
Dixon Creek Oil Co.'s No. 1-F Johnson Bros., 330 ft. N and E of W 67 ac., SW, Sec. 15, Blk. XO3, H.&O.B. Sur. ..... Fishing 2,821 ft.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Rotary rig.
Liner Drlg. Co.'s No. 1-D Johnson Bros., 330 ft. N and E, W½ SW, Sec. 6, Blk. 1, B.&B. Sur. ..... Drlg. 2,916 ft.
Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Spudded and S.D.
Stanolind O. & G. Co.'s No. 1 Barnhill, common cor. of tracts 28, 29, 30 and 31 of G. Martinez Sur., Blk. 2. Drlg. 2,960 ft.
Stanolind O. & G. Co.'s No. 2-A Pitcher, 990 ft. S, 330 ft. W, SE, Sec. 19, Blk. M-21, T.C.R.R. Sur. ..... Drlg. 1,200 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.O. 3,065 ft. and 3,108-10 ft.; S.D. for pipe line connection 3,110 ft.
The Texas Co.'s No. 1 Moore, 990 ft. N, 330 ft. W, SE, Sec. 21, Blk. M-21, T.-C. Ry. ..... Bldg. rotary rig.
Texilvania Oil Co.'s No. 1 Harvey, 330 ft. N and W, SW, NW, Sec. 14, Blk. M-21 ..... Drlg. 2,270 ft.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... T. D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Cloud & Dana's No. 1 Jones, 330 ft. N and E, SW, Sec. 169, Blk. 3-T, T.&N.O. Sur. ..... 2,000,000 ft. gas 2,810-60 ft; drlg. 2,885 ft; 12,000,000 ft. gas.
Continental Oil Co.'s No. 1 Brown, 990 ft. N and W, SE, Sec. 172, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 2,637 ft; set 8-in. csg.
Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. S and W, NE, Sec. 135, Blk. 3, T.&N.O. Sur. ..... Drlg. 2,565 ft.
Gulf Prod. Co.'s No. 2 Kilgore, C SE, Sec. 29, Blk. P.Mc., E.L.R.R. Sur. ..... Drlg. 1,980 ft.
Sunray Oil Co.'s No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Plains Holding Co.'s No. 1 Bridges, 1,690 ft. S and E, NW, Sec. 252, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 2,090 ft.
Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

OLDHAM COUNTY

Amalgamated German-American Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T. & N.O. Sur. ..... Spudded and S.D.
Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ..... S.D. 680 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1-B Crawford ..... Fishing 2,250 ft.

WHEELER COUNTY

Devore & Robinson's No. 1 Sitter, 2,310 ft. S and E, Sec. 33, Blk. 24, H.&G.N. Sur. ..... Drlg. 2,025 ft.
Reno Oil Co. et al's No. 1 D'spain, 330 ft. N and W, NE, Sec. 52, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,110 ft.
Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ..... Rigged up and S.D.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 50)

CULBERSON COUNTY

Cranfill Bros. and Sholts' No. 1 Seay, 2,310 ft. from S and W, Sec. 45, Blk. 60, Public School Land ..... Shut down 710 ft.
Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E, Sec. 20, Blk. 89, Public School Land.. Shut down 1,520 ft.
Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Shut down 1,240 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M, E.L.&R.R. Sur. ..... Spudded 20 ft. and shut down.

ECTOR COUNTY

Galt, Brown & Penn's No. 1 Cowden, C SE, Sec. 42, Blk. 44, Twp. 2s, T.&P. Sur. ..... Shut down 180 ft.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... Shut down 3,275 ft.
Southern Crude Oil Pur. Co.'s No. 2 Crowder & Co., 660 ft. from S and W of NE cor., Sec. 34, Blk. 43, Twp. 1n, T.&P. Sur. ..... Drlg. 3,732 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Shut down 3,089 ft.
Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines, Sur. No. 254, S.F. No. 7,247 ..... Drlg. 510 ft.

FISHER COUNTY

Roeser & Pendleton's No. 1 Gribble (Russell), 660 ft. from S and 440 ft. from W of NW, Sec. 210, B.B.B. &C. Sur. ..... Drlg. 2,230 ft.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE, Sec. 4, Blk. A-8, P.S.L. Sur. ..... Drlg. 1,530 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.
Perry & Porsey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Rig.

GLASSCOCK COUNTY

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. ... Temp. aban.; total depth 660 ft.

HOWARD COUNTY

Continental Oil Co.'s No. 1 Brindley, 660 ft. from S and E of Sec. 18, Blk. 33, Twp. 1s, T.&P. Sur. ..... Rigging up.
G. F. Getty's No. 1 Snyder, Sec. 27, Blk. 10, Twp. 1s., SW cor. NE NE ..... Shut down 2,500 ft.
Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W, Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur.. Spudded and shut down.
Group No. 1 Oil Corp.'s No. 2 Eason, 1,320 ft. from S and W, Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ..... Drlg. 2,415 ft.

Moody Oil Corp.'s No. 33-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Temp. stand. 261 ft.

BUDSPETH COUNTY

Patillo & Welch's No. 1 Briggs, 300 ft. from S and W. Sec. 13, Blk. 73, Twp. 7, T.&P. Sur. ..... Spudded and shut down.
Theison's No. 1 University, 3,650 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.

IRION COUNTY

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E, Sec. 3, Blk. 3, H.&T.C. Sur. ..... Shut down 1,360 ft.
Denny & Andrews' No. 1 Tankersley, 1,000 ft. from E and 460 ft. from S of H. J. Volker Sur. No. 723 ..... Drlg. 1,360 ft.
Dixie Oil Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Total depth 1,445 ft.; underreaming 13⅜-in. casing.

Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Shut down 1,480 ft.
F. F. Webb's No. 1 W. E. Williams, 200 ft. from E and 750 ft. from S line, SW. NE. Sec. 10, Gonzales County School Land ..... Shut down 100 ft.

JONES COUNTY

Bond & Trout's No. 1 Williams, 330 ft. S and E of SW cor. of J. W. Martin Sur. A-1,308 in Sec. 12 ..... Cleaning out 2,571 ft.
J. L. Hart et al's No. 1 Roberts ..... Total depth 1,000 ft.
Jameson et al's No. 1 King, 4,681 ft. from S and 150 ft. from E of M. Bueno Sur. No. 196 ..... Drlg. by tools 1,550 ft
Hardley Able Oil Co.'s No. 1 Butler, 5,790 ft. from S and 330 ft. from E of W. Littlefield Sur. No. 282, Abst 251 ..... Standard rig.
Shaheen and Prairie O. & G. Co.'s No. 1 King, 165 ft. N and 150 ft. W of SE cor., Lot 7, B. Bueno Sur. No. 197 ..... Location.
Shaheen et al's No. 1 Chittum, 165 ft. from S and W of 139.8-acre farm in G. Martinez Sur. No. 195 ..... Drlg. 840 ft.
Union Oil Co. of Nevada and Shaheen's No. 1 King, 200 ft. from N and W, Lot 5, M. Bueno Sur. No. 197 ..... Drlg. 2,073 ft.
Yingling et al's No. 1 Williams, 330 ft. N and E of SE cor. of Cade 160-acre tract but in Williams 200-acre farm, Sec. 17, Blk. 19, T.&P. Sur. ..... Drlg. 1,250 ft.

LOVING COUNTY

Cromwell et al's No. 1 Russell et al, 2,310 ft. from NE and 330 ft. from NW, Sec. 80, Blk. 1, W.&N.W. Sur... Top pay 4,205 ft.; shot 180 qts. 4,200-44 ft.; total depth 4,247 ft.; plugged back 4,245 ft.; cleaning out.

Douglas et al's No. 1 Wheat & Ramsey, 330 ft. from SE and 2,310 ft. from SW, Sec. 83, Blk. 1, W.&N.W. Sur. Drlg. 3,585 ft.
Eppenauer et al's No. 2 Allen, 2,310 ft. from NE and 330 ft. from NW, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,965 ft.
Falbre & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW, Sec. 79, Blk. 33, H.&T.C. Sur. ..... Drlg. 350 ft.
Henshaw et al's No. 2 Reagan & McElvain, 1,650 ft. from SW and 990 ft. from SE, Sec. 84, Blk. 7, W.&N.W. Sur. ..... Rig.
Hoffman et al's No. 1 Ramsey et al, 330 ft. NE and SE Sec. 83, Blk. 1, W.&N.W. Sur. ..... Spudded.
Hoffman et al's No. 2 Ramsey et al, 2,310 ft. from NE and 330 ft. from SE, Sec. 83 ..... Rig.
Irwin and others' No. 1 Auld, 1,825 ft. from NE and 1,298 ft. from NW, Sec. 67, Blk. 1, W.&N.W. Sur. .... Cellar.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 4,050 ft.
Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Rigged up and shut down.
Lockhart's No. 1 Hubbard, 6,930 ft. from NE and 330 ft. from SE, Sec. 83, Blk. 33, H.&T.C. Sur. ..... Drlg. 3,050 ft.
Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, H.&T.C. Sur. ..... Rigged up and shut down.
Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, W.&N.W. Sur. ..... Total depth 4,382 ft.; plugged back to 4,368 ft.; flowed 140 bbls. oil 24 hrs.

Rush et al's No. 1 Wheat, 330 ft. from NW and SW, Sec. 77, Blk. 1, W.&N.W. Sur. ..... Cellar.
Siagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W, Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Shut down 2,914 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Rig.
California Co.'s No. 2 Allen, 2,310 ft. from SE and SW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 1,690 ft.; elevation 2,742 ft.
California Co.'s No. 3 Allen, 2,191 ft. from NW and 2,183 ft. from SW, Sec. 90, Blk. 1, W.&N.W. Sur. .... Building rig.
California Co.'s No. 4 Allen, 3,121 ft. from NW and 3,113 ft. from SW, Sec. 90, Blk. 1 ..... Moving in material.
California Co.'s No. 7 Reagan & McElvain, 2,031 ft. from SE and 1,014 ft. from NE of Sec. 84, Blk. 1, W.&N.W. Sur. ..... Coring 4,332 ft.; top Delaware 4,305 ft.

West Texas Pet. Corp.'s No. 1 Salsbury, 330 ft. from NW and SW, Sec. 89, Blk. 1, W.&N.W. Sur. ..... Rigging up.

MENARD COUNTY

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Shut down 2,712 ft.

MITCHELL COUNTY

Lewis & Siagel's No. 1 Bell ..... Cleaning out 2,820 ft.; swabbing 60 bbls. oil daily; total depth 2,827 ft.

PECOS COUNTY

Cardinal Oil Co.'s No. 1 White & Baker, 990 ft. from N and 990 ft. from E, Sec. 47, Blk. 194, T.C.&S.F. Sur. ..... Rigging up.
Culberson Bros.' No. 1 Toppett (Humble), 150 ft. S and 843 ft. E of C Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.
Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW, Sec. 28, Blk. 3, H.&T.C. Sur. ..... Total depth 965 ft.
Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ..... Total depth 6,180 ft.; cem. whipstock 5,100 ft.

Lancaster's No. 1 Eaton (Pure), 330 ft. from SE and SW, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Shut down 965 ft.
Magnolia Pet. Co.'s No. 1 Eaton, 2,310 ft. from SW and 330 ft. from NW, Sec. 35, Blk. 3, H.&T.C. Sur. ..... Shut down 1,005 ft.
McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE, Sec. 40, Blk. 104, G.C.&S.F. Sur. ..... Location.
McCarty Oil Co.'s No. 3 Gray, 700 ft. from N and 2,260 ft. from W, Sec. 591, G.C.&S.F. Sur. ..... Fishing 1,437 ft.
Messenger et al's No. 1 Butz, 1,320 ft. from NW and 1,170 ft. from SW, Sec. 54, Blk. 10, H.&G.N. Sur. ..... Shut down 1,299 ft.
Mid-Kansas O. & G. Co. et al's No. 1-A Sellman, 250 ft. from S and 330 ft. from W, Sec. 12, Blk. 190, G.C. &S.F. Sur. ..... Total depth 1,922 ft.; will plug back and complete as gas well.

J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 2,283 ft.
Penn Oil Co. et al's No. 1 Alvis, 2,358 ft. from S and 1,327 ft. from W, Sec. 155, Blk. 3, T.&P. Sur. ..... Total depth 1,980 ft.
Perren Oil Co.'s No. 2 Eaton, C of E, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Drlg. by tools 1,765 ft.
Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 5,000 ft.
Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ..... Shut down 500 ft.
Schilling & Slaughter's No. 1 Yates, 1,580 ft. N and 150 ft. E of NW cor. Runnels County School Land, but located in Sec. 70, Blk. 1, I.&G.N. Sur. ..... Shut down 337 ft.

California Co. et al's No. 1 Thomas, 990 ft. from NW and SW, Sec. 31, Blk. 34, H.&T.C. Sur. ..... Location.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&St.L. Sur. ..... Shut down 3,504 ft.
Williams & Moran's No. 1 Heiner est., 460 ft. from N and 2,490 ft. from W of Sec. 590, G.C.&S.F. Sur. .... Drlg. 1,950 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 6-C University, 1,120 ft. S and 1,100 ft. from W, Sec. 25, Blk. 9 ..... Location.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W. Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.
Riggs & Smith's No. 1 Lee Monroe, 2,190 ft. from NE and 330 ft. from NW line, Sec. 34, Blk. 8, H.&L.N. Sur. ..... Shut down 264 ft.; junked hole to skid.

Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from NW line, Sec. 34, Blk. 7, E.&L.N.... Temporarily abandoned.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.... Shut down 4,415 ft.
California Co.'s No. 2 Kloh & Rumsey, 990 ft. from S and 1,520 ft. from E, Sec. 11, Blk. 54, Twp. 4, T.&P. Sur. ..... Total depth 1,187 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 414 ..... Shut down 2,175 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 1,225 ft.
Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 37, Blk. K, G.H.&S.A. Sur. ..... Shut down 4,935 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Underreaming 12½-in. casing; total depth 1,060 ft.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,027 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,970 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ..... Shut down 2,376 ft.

STERLING COUNTY

Beesley et al's No. 1 Foster, 2,940 ft. N and 300 ft. W of SW cor., Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 31, Twp. 4s, T.&P. Sur. ..... Running 10-in. casing 580 ft.

TAYLOR COUNTY

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Drlg. 6,259 ft.
Sanger et al's No. 1 City of Abilene, 830 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land ..... Drlg. 2,760 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mrs. J. B. McPhees' No. 1 Sam Belt, C, Sec. 16, Blk. D-7, E.L. Sur. ..... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. Sur... Gauged 6,500,000 ft. of gas 5,606 ft.; shut down 5,612 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 625 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.

Mintex Oil Co.'s No. 1 Campbell est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. .... Shut down 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Duffey and others' No. 1 McClintic, 990 ft. from N and 330 ft. from E, T.C.S.D.&R.G.N.G. Sur. ..... Building rig.
Farley et al's No. 1 Lane, 330 ft. from S and W of NW. Sec. 36, Blk. 1, M.-K.-T. Sur. ..... Drlg. 1,240 ft.; elevation 2,800 ft.
R. R. Penn and Shell Pet. Corp.'s No. 1 Halamicek, C SE, Sec. 93, Blk. D, C.C.S.D.&R.G.N.G. Sur. ..... Shut down 4,722 ft.; elevation 2,300 ft.

T P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Shut down 2,815 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE, Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Waiting for cement to set 6,780 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ..... Drlg. 145 ft.
Empire Gas & Fuel Co.'s No. 1 John Sealy est., 330 ft. from S and 1,650 ft. W of NE cor., Sec. 5, Blk. F, T.&M.M. Bros. Sur. ..... Drlg. by tools 2,610 ft.; spraying 25 bbls. oil per day.

Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, E.&T.C. Sur.. Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,515 ft.; plugged back to 2,477 ft.

Gulf Prod. Co.'s No. 16 O'Brien, 2,310 ft. from S and 990 ft. E, Sec. 16, Blk. F, L.M.&W.B.&A. Sur. ..... Fishing 2,554 ft.
Kugle et al's No. 1 Wallace, 330 ft. from SE and 1,263 ft. from SW, Sec. 19, Blk. 34, H.&T.C. Sur. ..... Shut down 2,462 ft.; swabbing 75
Magnolia Pet. Co.'s No. 1 Sealy (Atlantic), 2,130 ft. from S and 1,650 ft. from E, Sec. 45, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,285 ft.
R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ..... Shut down 2,205 ft.
Prairie O. & G. Co.'s No. 1 Hill, 330 ft. from NE and NW, Sec. 30, Blk. B-29, P.S.L. Sur. ..... Cem. 6-in. casing 2,168 ft.
Paul Ryan's No. 1 Allen, 998 ft. from NW and 3,624 ft. from NE, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,635 ft.
Shipley et al's No. 5 Hayslett, 2,490 ft. from SE and 1,980 ft. from SW, Sec. 17, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,960 ft.
California Co. et al's No. 1 Lanham, 990 ft. from NE and SE, Sec. 25, Blk. 34, H.&T.C. Sur. ..... Building rig.
California Co.'s No. 1 Gordon, 330 ft. from NE and SE. Sec. 6, Blk. 34, H.&T.C. Sur. ..... Rig up.
Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ..... Drlg. by bit 3,785 ft.

WINKLER COUNTY

Magnolia Pet. Co.'s No. 1 Bashara, 1,650 ft. from S and 2,310 ft. from W, Sec. 17, Blk. B-3, P.S.L. Sur. ..... Drlg. 2,898 ft.
Magnolia Pet. Co.'s No. 1 Walton, 2,310 ft. from N and W, Sec. 16, Blk. 77, P.S.L. Sur. ..... Rigging control head; show gas 2,658-63 ft.; total depth 2,663 ft.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Shut down 4,639 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur. ..... T. D. 4,546 ft.; testing.
E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss.. Location.
Cosden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Rangley Subd. of C. Miller ranch, Uranga Sur. ..... T. D. 4,500 ft.; shut down.
Humble and Huribut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co. ..... T. D. 5,077 ft.; standing.
The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur. ..... Location.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W Lot 4, T. B. Barton Sur. ..... T. D. 1,300 ft.; drlg.

BEXAR COUNTY

Eckert & Son's No. 3 J. J. Brehm, 545 ft. from N line, 150 ft. from W line of lease, Sur. No. 58 ..... Location.
Eckert & Son's No. 6 Brehm, 150 ft. W of No. 5 ..... Location.
Eckert & Son's No. 7 Brehm, 150 ft. W of No. 6 ..... T. D. 400 ft.; drlg.
Gatlin Oil Co.'s No. 2 I. A. Beck, 150 ft. from SE line, 2,551 ft. from SW line of lease, J. Montes Sur. ..... Location.
Gatlin Oil Co.'s No. 4 Beck, Juan Montez Sur. ..... Location.
Gatlin Oil Co.'s No. 5 Beck, 300 ft. SE No. 4 ..... Rigging up.
Kaye and Uhl's No. 1 Rhode, C. Texada Sur. No. 133 ..... T. D. 665 ft.; shut down.
Long and Craig's No. 1 Sandemer ..... Location.
McElroy-Hall and Croach's No. 1 Sweeney, 450 ft. NW line, 700 ft. W line of tract, F. R. Hernandez Sur. ... Waiting on cement.
J. M. Russell's No. 1 F. L. Price, 1,500 ft. to N line, 660 ft. W of tract in Angel Navarro Sur. ..... T. D. 1,024 ft. in chalk; shut down for csg.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio ..... T. D. 802 ft.; shut down.
Welbacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur. ..... T. D. 938 ft.; shut down.
Somerset Syndicate's No. 1 Lagrange, 54 varas from S and W lines of Carrico tract, Sur. No. 48 ..... T. D. 375 ft.; shut down.
Russell & Moore's No. 3 Mills, Angel Navarro Sur. No. 5 ..... T. D. 400 ft.; drlg.
Ueckert et al's No. 1 Palfrey, 1,000 ft. S and W lines of farm ..... T. D. 1,809 ft.; shut down.
S. M. Terrell et al's No. 1 A. Beadom, 1,100 ft. from E line, 12,000 ft. from N line of John Barber Sur..... Location.
F. W. Tong's No. 1 Willie Sandemer, 150 ft. from NE and SE lines of the N 20 acres of Willie Sandemer 400-acre tract, Juan Montez Sur. ..... T. D. 1,170 ft.; shut down.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 688-ac. tract, J. M. Sur. ..... T. D. 2,000 ft.; plugged back to 600 ft.; will put on pump.
Waggoner and Stieren's No. 1 S.A.S.I.F., G. Najar Sur.... T. D. 500 ft.; set 8-in. csg.

CALDWELL COUNTY

Callihan et al's No. 3 W. H. Callihan, 70 ft. N, 65° E of No. 2 ..... T. D. 2,525 ft.; shut down.
Jim Harper's No. 1 Tabor, Pablo Martinez Sur. ..... Derrick.
Blount and Mills' No. 1 McMahan, 275 ft. from SW line, 75 ft. from SE line of 50-ac. tract, J. Pinchback Sur. ..... T. D. 2,200 ft.; standing.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 600 ft.; standing.

DEWITT COUNTY

H. T. Roe's No. 1 Leinhardt ..... T. D. 2,170 ft.; shut down.

DUVAL COUNTY

Buchanan et al's No. 2 Wood-Welder, S. Alexander Sur. No. 102 ..... T. D. 1,506 ft.; set csg.
O'Byrne et al's No. 1 Well, B.S.&F. Sur. No. 568 ..... Moving in.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 7,660 ft.; drlg. hard black lime.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur... Location.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur. No. 13 ..... T. D. 1,033 ft.; drlg.

FRIO COUNTY

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupzor ..... T. D. 2,708 ft.; shut down.

GOLIAD COUNTY

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexeter Sur. ..... T. D. 2,330 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur. ..... T. D. 5,267 ft.; bailing.
T. B. Slick's No. 1 Poetter, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur. ..... T. D. 4,213 ft.; shut in for storage.
T. B. Slick's No. 1 Allen, Obid Marshall Sur. ..... T. D. 4,200 ft.; drill stem test showed oil and gas.

GONZALES COUNTY

Andibus & Cummings' No. 1 R. D. and J. C. Miller, 523 ft. from S line, 1,000 ft. from E line, Ann Williams Sur. ..... T. D. 2,550 ft.; shut down.
Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur. ..... T. D. 2,560 ft.; shut down.
Linden Pet. Co.'s No. 1 Cowley, James Smith Sur. ..... Rigging up.
Weal Oil Co.'s No. 1 Martin, 360 ft. SE line and SW line of tract, Thomas Moore Sur. ..... T. D. 3,164 ft.; drlg. shale.

GUADALUPE COUNTY

O. K. Emerson's No. 1 C. A. Phillips, center of 80-ac. tract, Velda Sur. ..... Rigging up.
Luling Oil & Gas Co.'s No. 1 Nixon, E of Darst Creek, L. W. Alexander Sur. ..... Rigging up.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. ..... Derrick.

HAYS COUNTY

Harley & Whittington's No. 1 Heidenrich, 4,900 ft. from NW line, 400 ft. from NE line of farm, Hemphill Sur. ..... T. D. 2,750 ft.; coring.
J. C. Jones et al's No. 1 Byder, John Ingram Sur. ..... T. D. 450 ft.; drlg.

JIM HOGG COUNTY

J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 6 A, Hinojosa Sur. ..... T. D. 2,888 ft.; standing.

JIM WELLS COUNTY

Carsil Oil & Gas Co.'s No. 1 McGill, D. Baldwin Sur. .... Rigging up.
R. H. Ewell's No. 1 Doering, Blk. 6, Seefield Subd. ..... Location.
Gulf Prod. Co.'s No. 1 Shaeffer, J. Pointevent Sur. No. 1.. Moving in.
Prairie Lea Prod. Co.'s No. 1 Oppenheimer ..... T. D. 600 ft.; coring.
Smith Clark Co.'s No. 1 Cuero Cattle Co. ..... Location.
Stewart and Blair's (E. W. Ogden) No. 1 Farris ..... T. D. 1,975 ft.; coring.

KARNES COUNTY

J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouli Sur. ..... T. D. 2,180 ft.; drlg.
A. Edmiston's No. 1 Cochran, 150 ft. from S line, 500 ft. from E line of tract, D. B. McConnell Sur. ..... T. D. 1,010 ft.; standing.
Huribut et al's No. 1 Newberry, 450 ft. SE and SW line of Newberry 426-ac. tract, Carlos Martinez Sur. ..... T. D. 2,915 ft.; whipstocked at 2,626 ft.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 1,010 ft.; drlg.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 1,165 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 2,410 ft.; shut down.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia ..... T. D. 1,600 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line ..... T. D. 706 ft.; standing.
Permian Oil Co.'s No. 1 Taylor, Sec. 15, G.B.&O. Sur. .... T. D. 100 ft.; shut down.

KERR COUNTY

Evans and Gant's No. 1 Seiker-Mears, C.C.S.D.&R.G. N.G. Sur. No. 1,605 ..... T. D. 600 ft.; drlg.
Evans and Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 ..... Drlg. water well.

KINNEY COUNTY

Marion Oil Co.'s No. 2 Jim Clamp ..... T. D. 1,389 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges ..... T. D. 2,505 ft.; shut down; hole full water.

LASALLE COUNTY

Fred W. Valez' No. 1 Coleman, 200 ft. from S and E lines of SW Sec. 514, B.S.&F. Sur. ..... T. D. 40 ft.; standing.

LAVACA COUNTY

Cranfill & Reynolds' No. 1 Hermes, William Ryan Sur.... T. D. 3,500 ft.; drlg.
Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Hueser Sur. ..... T. D. 3,340 ft.; fishing.

LIVE OAK COUNTY

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay in the Bridget Fadden Sur., 3 miles E from George West... T. D. 4,005 ft.; coring.
Houston Oil Co.'s No. 3 Dunning, 330 ft. from NE line and 2,800 ft. from SE line of tract, M. B. Kilvin Sur... Moving in derrick.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. ..... T. D. 5,386 ft.; coring.
Illinois Exploration Synd.'s No. 1 Reeves-Brown, 1,300 ft. S of Sellars tract, 1,800 ft. E of Ry. ..... T. D. 2,145 ft.; cleaning out.
Phillips Pet. Corp.'s No. 1 Goebel, Refugio County School Land Sur. ..... T. D. 115 ft.; drlg.
Southern Exploration Co.'s No. 1 Ponder, B.S.&F. Sur., in eastern Live Oak ..... Derrick.
Sid Keoughan's No. 1 C. E. Terrell, 6,000 ft. from N line, 1,000 ft. from E line, Dan O'Boyle Sur. ..... T. D. 2,840 ft.; shut down.

LEE COUNTY

Burt et al's (M. D. Rickett) No. 1 R. C. Sanders ..... T. D. 3,124 ft.; shut down.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 1,998 ft.; resetting 6⅝-in. csg.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League ..... T. D. 932 ft.; shut down.
W. L. Murrell et al's No. 1 Hixon ..... T. D. 775 ft.; shut down.

McMULLEN COUNTY

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 632 ft.; standing.
Sheree, Brodie and Emick's No. 1 Shiner, Henry Brewer Sur. ..... T. D. 1,170 ft.; testing.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 7, I.&G.N. Sur. ..... T. D. 4,135 ft.; drlg.; hole full sulphur water.
Texas Gas Utilities Co.'s No. 7 Chittim, 5.70° E, 1,845 ft. from No. 3, I.&G.N. Sur. ..... T. D. 3,130 ft.; pulling 10-in. csg.

MEDINA COUNTY

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay ..... T. D. 2,618 ft.; shut down.
J. H. Hickey's No. 1 Odon, H Castro Sur. No. 175 ..... Drlg. shale 708 ft.
Donaldson Oil & Gas Co.'s No. 2 Adams ..... Derrick.
C. H. Florian et al's No. 1 Henry Meyer ..... T. D. 200 ft.; standing.
Caldwell et al's No. 1 L. W. Burrell ..... T. D. 518 ft.; standing.
M. Eskridge et al's No. 1 Medina Valley Irrigation ..... T. D. 1,330 ft.; drlg.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine ..... T. D. 2,789 ft.; shut down.
Sunflower Oil Co.'s No. 1 Mofield, J. Brothag Sur. No. 532 ..... Location.

MILAM COUNTY

Rheubotham & Tate's No. 1 Johnson, 325 ft. from N line, 250 ft. from W line of 40-ac. tract, D. Robinson Sur. ..... T. D. 1,475 ft.; shut down.
Masters and Pomeroy's No. 1 Pluger, J. J. Acosta Sur... T. D. 40 ft.; set surface csg.
Kyser, Roberts & Dibble's No. 2 Ward ..... T. D. 2,900 ft.; drlg.
J. E. McKee et al's No. 1 Littleton, 150 ft. from N and 225 ft. from W lines of lease, C. Chevallier Sur. .... T. D. 100 ft.; shut down.
Peggie Brothers' No. 1 M. Reed ..... T. D. 650 ft.; shut down.
Service Oil & Gas Co.'s No. 1 H. G. Hensiee, 500 ft. from NW line, 400 ft. from NE line of 50-ac. tract, Valdez Sur. ..... T. D. 2,180 ft.; standing.

NUECES COUNTY

Grimm et al's No. 1 William Baur ..... T. D. 4,520 ft.; drlg.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop Subd., Palo Alto lands ..... T. D. 4,040 ft.; drlg.
Moody-Seagraves' No. 1 Sedgwick, J. Dunn Sur. ..... T. D. 350 ft.; drlg.

REAL COUNTY

Evans & Sprinkle's No. 1 J. M. Auld, H.E.&W.T. Sur. No. 15 ..... T. D. 1,900 ft.; drlg.
McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 1,350 ft.; set csg.
Gant-Kilgore and Evans' No. 1 A. D. Auld, C.C.S.D.& R.G.N.G. Sur. No. 23 ..... Spudding.

STARR COUNTY

Los Olmos Oil Co.'s No. 2 Kelsey-Bass, Blk. 6, Porcion 77 ..... T. D. 369 ft.; standing.
Kush and Duerkson's No. 1 Kelsey-Bass, Blk. 9, Porcion 75, Carmargo Sur. ..... Drlg. 856 ft.
Menyard et al's No. 1 Sealbury, 150 ft. from E line, 6,550 ft. from N line, Share 5, Porcion 75, Jurisdiction of Carmargo ..... T. D. 349 ft.; set 8-in. csg.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neill Sur., Abstract 211 ..... T. D. 4,020 ft.; shut down.
Saxet Oil Co.'s No. 1 Carrol, 8 miles N of Gregory ..... Derrick.

TRAVIS COUNTY

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. .... T. D. 874 ft.; shut down.
Franklin et al's No. 1 Wilson, A. Alexander Sur. ..... Location.
Bohls and Wilson's No. 1 Norton, J. Cole Sur. ..... Derrick.

UVALDE COUNTY

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 2,710 ft.; shut down.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde ..... T. D. 1,610 ft.; running csg.

VICTORIA COUNTY

Newton et al's No. 1 West ..... T. D. 1,550 ft.; standing.
The Texas Company's No. 2 McFadden, C. M. Boyd Sur... T. D. 2,300 ft.; blew out.

WEBB COUNTY

Usher Carson et al's No. 3 Benavides, 150 ft. from S and W lines of Blk. 7, Sur. 1,613 ..... T. D. 650 ft.; drlg.
O. W. Killam's No. 1 Bruni, 2,490 ft. from E line, 1,170 ft. from S line of Sur. No. 77 ..... T. D. 3,212 ft.; drlg.

WILSON COUNTY

Stover and Wren's No. 1 John Ruess, 10,400 ft. from SW line, 2,300 ft. from NW line, O. A. Trevino Sur., No. 19 ..... T. D. 1,100 ft.; shut down.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigging up.

John Poppas Pool, Inc.'s No. 1 Flores, 2,977 ft. SE line, 6,000 ft. Rio Grande River, Porcion 35 ..... Rigged up.
B. F. Nixon's No. 1 A. Guiterrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant .... T. D. 750 ft.; standing.
O. W. Killam's No. 3 Slator, Borrego grant ..... T. D. 2,560 ft.; drlg.
John J. O'Hern's No. 2 Benavides, Villa grant ..... T. D. 1,650 ft.; drlg.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... T. D. 1,929 ft.; standing.
William Marks' No. 1 Flores, Blk. 36, Porcion 37 ..... T. D. 2,060 ft.; drlg.
National Oil Co.'s No. 1 Luther, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 350 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... Location.
Mackenzie and Talmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 ..... T. D. 570 ft.; drlg.

ZAVALA COUNTY

Carl Cromwell's No. 1 Whitecotton, C of NW Sec. 1, A.P.&M. Sur. ..... Location.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 220 ft. from NE cor. Sur. No. 13 ..... T. D. 3,215 ft.; shut down.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 40)

Vitex Oil Co.'s No. 8 Kilgore, Simon Miller Sur. ..... T. D. 1,735 ft.; waiting on cement

PETTUS AREA—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr Sur. ..... T. D. 3,830 ft.; fishing.
Houston Oil Co.'s No. 1, Blk. 33 ..... T. D. 3,911 ft.; to be deepened.
Houston Oil Co.'s No. 1, Blk. 33 ..... T. D. 3,914 ft.; to be deepened.
United Prod. Co.'s No. 33 Ray, G. Habbermacker Sur. ... T. D. 3,701 ft.; drlg.
United Prod.'s No. 34 Ray, T. Hanson Sur. ..... T. D. 2,700 ft.; drlg.

LASATER POOL—BROOKS COUNTY

Houston Oil Co.'s No. 3 Wormser, Maguella Sur. ..... T. D. 2,330 ft.; drlg.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 3 B. L. and C. C. ..... T. D. 5,280 ft.; drlg.
Houston Oil Co.'s No. 4 B. L. and C. C. ..... T. D. 4,650 ft.; drlg.

AGUA DULCE FIELD—NUECES COUNTY

South Texas Production Co.'s No. 9 Walter, 800 ft. from S line, 460 ft. from E line of Walter tract, in Section 34 ..... T. D. 1,984 ft.; standing.
Houston Oil Co.'s No. 1-B Ollie Purl ..... T. D. 2,300 ft.; drlg.
Houston Oil Co.'s No. 1 Comstock, Sec. 86, Benton Pasture Sur. ..... T. D. 4,913 ft.; shut in for pipe line.

SAXET FIELD—NUECES COUNTY

O. C. Best et al's No. 1 Boory ..... Derrick.
Houston Oil Co.'s (Andy Bowen) No. 1 Prieur, H. B. Sheppard Sur. ..... T. D. 1,465 ft.; waiting for csg.
W. L. Pearson Properties' No. 1 Dunn, 300 ft. S of Bay ..... Shut down 2,600 ft.
Saxet Oil Co.'s No. 7 Dunn ..... Location.

LAREDO DISTRICT

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Frasher et al's No. 2 Duval Land Co., G.B.&C.N.G. Sur. No. 135 ..... T. D. 2,276 ft.; comp. 20,000,000 ft. gas.

RANDADO POOL—JIM HOGG COUNTY

J. W. Pippin's No. 1 Hinnant, 150 ft. each way from SW cor., Blk. 11, Sur. 147 ..... Derrick.

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 ..... T. D. 4,457 ft.; drlg.

S. R. C. POOL—DUVAL COUNTY

S. R. C. and Vacuum's No. 3 Duval County Ranch Co., G.C.&S.F. Sur. No. 293 ..... T. D. 1,700 ft.; coring.

COLE POOL—DUVAL COUNTY

Southern Oil Co.'s No. 2 King-Harper, 1,794 ft. E line, 729 ft. N line of Sur. 323 ..... Location.

COLE POOL—WEBB COUNTY

O. W. Killam's No. 3 Cuellar, Cuellar grant ..... T. D. 2,353 ft.; abnd.

REISER POOL—WEBB COUNTY

O. W. Killam's No. 1 Johnson, Sur. 1,617 ..... T. D. 500 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ..... T. D. 3,960 ft.; standing.

CHARCO REDONDO POOL—ZAPATA COUNTY

Midwest Public Utilities' No. 1 Zarza, 450 ft. SW line, 450 ft. SE line, Blk. 33, Federnal grant ..... T. D. 1,598 ft.; drlg.

JENNINGS-MUCKELROY POOL—ZAPATA COUNTY

Allied Oil & Gas Co.'s No. 12 Guiterrez, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ..... T. D. 100 ft.; standing.
Claypool & Nixon's No. 2 Garza, Comitas grant ..... T. D. 1,388 ft.; bailing.
Grim & Yokey's No. 1 P. Santos, Comitas grant ..... T. D. 1,350 ft.; comp. 15,000,000 ft. gas.
S. T. Phelps (Blankenship) No. 2 Garza, 425 ft. W line, 425 ft. E line, Blk. 2, Sur. 413 ..... T. D. 1,705 ft.; drlg.
Shankle and Murray's No. 1 Cuellar, Blk. 6, Sur. 61 .... Derrick.
W. R. Shankle's No. 1 Garza, Blk. 10, Comitas grant .... T. D. 1,415 ft.; set csg.
S. R. C. Oil Co.'s No. 14-A Trevino, Blk. 2, Sur. 66 ..... T. D. 1,278 ft.; comp. 30 bbls.

CUELLAR POOL—ZAPATA COUNTY

O. W. Killam's No. 40-C Cuellar Sur. No. 278 ..... Derrick.
O. W. Killam's No. 41-B Cuellar, Sur. No. 277 ..... T. D. 1,569 ft.; set csg.

MIRANDO VALLEY POOL—ZAPATA COUNTY

A. R. McLennan's No. 1 Cuellar ..... T. D. 1,581 ft.; comp. 50 bbls.
O. W. Killam's No. 3 Killam Sur. No. 182 ..... T. D. 1,359 ft.; comp. 20,000,000 ft. gas.
O. W. Killam's No. 4 Killam, Blk. 11, Sur. No. 182 ..... T. D. 1,386 ft.; drlg.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 42)

Yount Lee Oil Co.'s No. 2 Winfree, west flank, W. D. Smith Sur., 50 ft. from S line and 100 ft. from E line of tract ..... Drlg. gumbo 1,462 ft.

RACCOON BEND—AUSTIN COUNTY

H. R. Flannigan's No. 2 Dietrich ..... Drlg. shale 3,201 ft.
Humble & Valley's No. 4 Diemar ..... Drlg. shale 3,369 ft.
Humble & Valley's No. 9 Mueller ..... Comp. flowing 143 bbls. pipe line oil first 7 hrs. 3,510 ft.; 31.5 gravity.
Humble & Valley's No. 7 Payne ..... Derrick.
Humble & Valley's No. 8 Payne ..... Derrick.
Humble & Valley's No. 11 Payne ..... Drlg. shale 11,45 ft.
Humble & Valley's No. 1 Martha Remmert ..... Derrick.
Humble & Valley's No. 5 Sherrod ..... Location.
Humble & Valley's No. 13 Thompson ..... Location.
Humble & Valley's No. 6 Woodley ..... Derrick.
Humble & Valley's No. 7 Woodley ..... Derrick.
Humble & Valley's No. 8 Woodley ..... Derrick.
Humble & Valley's No. 9 Woodley ..... Derrick.

HUMBLE—HARRIS COUNTY

Dunbar & Deering's No. 2 Bennett (workover)..... Swabbed and failed to flow 4,374 ft.; to pump.
LaRue, trustee's No. 1 Crane, northwest..... Derrick.
M. LaRue's No. 1 Tuffly, northwest ..... Gumbo 1,405 ft.; shut down.
Rio Bravo Oil Co.'s No. 6 fee (workover), W. B. Adams Sur., 50 ft. out of SW cor. 22-ac. tract ..... Formerly comp. 4,409 ft. 470 bbls.; milling out to sidetrack.
Southern Coastal Oil Co.'s No. 2 Perkins..... Standing sand and shale 2,850 ft.
Sun Oil Co.'s No. 17 Bender (workover), Adams Sur., 217 ft. E and 50 ft. S of NW cor., Lot 9 ..... Rig up to deepen 4,412 ft.
Sun Oil Co.'s No. 19 Bender ..... Heaving shale 4,808 ft.; abnd.
Sun Oil Co.'s No. 20 Bender, Adams Sur., Bender south addition, 354 ft. from E line and 50 ft. from S line of Blk. 2 ..... Drlg. sand 2,524 ft.
Sun Oil Co.'s No. 21 Bender, Adams Sur., Bender South Addition, 60 ft. NW No. 15 ..... Rig.
Sun Oil Co.'s No. 1 Beck, west flank ..... Drlg. shale 4,100 ft.
Trapshooter Oil Co.'s No. 3 Rosenbaum ..... Failed to pump 4,067 ft.; standing.
Trapshooter Oil Co.'s No. 10 Nell, northwest ..... Salt 1,806 ft.; standing.

PIERCE JUNCTION—HARRIS COUNTY

Anderson & Plummer's No. 6 Whitehead (workover), J. Hamilton Sur. ..... Old total depth 6,591 ft.; rig up to workover.
Bryan Ward, trustee's No. 1 Prudential (workover) ..... Set 82 ft. 3-in. screen 4,559 ft.
Gulf Prod. Co.'s No. 1 Manchester (workover) ..... Formerly comp. 500 bbls. 3,720 ft.; rig up to deepen.
Gulf Prod. Co.'s No. 23 Taylor, east side, James Hamilton Sur. No. 52 (workover) ..... Total depth 4,857 ft.; sidetracked and drlg. sandy lime 2,789 ft.
Trapshooter Reilly Oil Co.'s (formerly Mike Kouri's) No. 1 fee, B.B.B.&C. Sur. 1,028, 21 ft. from W line and 20 ft. from S line, Blk. 10 ..... Total depth 4,020 ft.; cmtd. to 3,940 ft.
Navarro Oil Co.'s No. 2 Perry ..... Sand showing oil 4,308-41 ft.; set 1 joint screen; comp. flowing 1,000 bbls. pipe line oil; 27° gravity.
Rio Bravo Oil Co.'s No. 14-A Settegast (workover) ..... Old total depth 5,045 ft.; rig up to workover.
Rio Bravo Oil Co.'s No. 102 G.H.&S.A., B.B.B.&C. Sur. No. 1,028, 35 ft. S of C of R.R. track and 50 ft. E of No. 101 ..... Rig.
Smith et al's No. 1 Bender fee, B.B.B.&C. Sur. No. 1,028, 173 ft. from E line and 14 ft. from N line of Lot 40, Jones Subd. ..... Drlg. gumbo 520 ft.
Tilton & Perot's No. 1 Gulf fee, B.B.B.&C. Sur., No. 1,028, 230 ft. from E line and 26 ft. from S line, Lot 26, Jones Subd. ..... Rig.
Superior Oil Corp.'s No. 1 Boyles (workover), B.B.B.& C. Sur. No. 1,028 ..... Drlg. gumbo and shale 4,130 ft.
Superior Oil Corp.'s No. 2 Boyles (workover), B.B.B.& C. Sur. No. 1,028 ..... Pulling screen to deepen.
Warner-Quinlan's No. 2 Minchen, B.B.B.&C. Sur. No. 1,028, 44 ft. from S line, Lot 5, and 134 ft. due W of No. 1 (Lot 7) ..... Rig.

BIG CREEK—FORT BEND COUNTY

Gulf Prod. Co.'s No. 61 Davis ..... Total depth 4,173 ft.; sidetracked to 3,670 ft.; abandoned.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 5 Lost Lake ..... Granular anhydrite and salt 7,471 ft.; drill pipe stuck; abnd.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 59 McFaddin (workover), Humphreys Sur., 957 ft. from N line and 640 ft. from E line of lease ..... Comp. flowing 250 bbls. fluid, 50 pct. water, 4,289 ft.
Yount Lee Oil Co.'s No. 113 McFaddin (workover)..... Drlg. hard sand 4,159 ft.

NORTH DAYTON—LIBERTY COUNTY

Harrison Oil Co.'s No. 4 Quintette (workover)..... Total depth 6,077 ft. in salt; sidetracked and drlg. sticky shale 5,646 ft.

HIGH ISLAND—GALVESTON COUNTY

Marrs McLean's No. 12 Cade (workover)..... Total depth 4,552 ft.; twisted off; sidetracking in hard sand 3,668 ft.
Marrs McLean's No. 16 Cade (workover) ..... Old total depth 3,759 ft.; pulling screen to deepen.
Marrs McLean's No. 20 Cade ..... Rig standing.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 28 Moore ..... Drlg. shale and lime 3,112 ft.

HULL—LIBERTY COUNTY

Bashara Oil Co.'s No. 2 Bashara (workover) ..... Comp. flowing 125 bbls. oil 4,248 ft.
The Texas Company's No. 4 Barrow ..... Drlg. hard sticky shale 4,500 ft.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 3 Eiman ..... Abandoned 1,956 ft.
Sun Oil Co.'s No. 2 Marcus, J. F. Perry Sur., 300 ft. from N line and 203 ft. from E line of tract..... Set 20 ft. screen 1,254 ft.; comp. flowing 15 bbls. oil.
Sun Oil Co.'s No. 3 Marcus, J. F. Perry Sur., 203 ft. from N line and midway east and west 7-ac. tract ..... Drlg. sand 1,068 ft.
Sun Oil Co.'s No. 5 Caraway, J. F. Perry Sur., 200 ft. from W line and 600 ft. N of No. 2 ..... Location.
Sun Oil Co.'s No. 5 Witt ..... Rig.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds' No. 18 Esperson ..... Drlg. sandy shale 3,224 ft.
Cranfill-Reynolds' No. 8 Moores Bluff ..... Sand showing oil 2,305-23 ft.; set 1 joint screen; bailing.
Cranfill-Reynolds' No. 7 Davis, David Kokernut Sur., 100 ft. S No. 4 ..... Rig.
Cranfill-Reynolds Oil Co.'s No. 1-C Kirby fee..... Drlg. shale 5,112 ft.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 12 Boyt, H.&T.C. Sur. No. 22, 500 ft. E No. 11 ..... Drlg. 200 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 109-A Cotton ..... Spudded.
Rio Bravo Oil Co.'s No. 110-A Cotton ..... Sand 457-500 ft.; comp. 50 bbls. daily.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

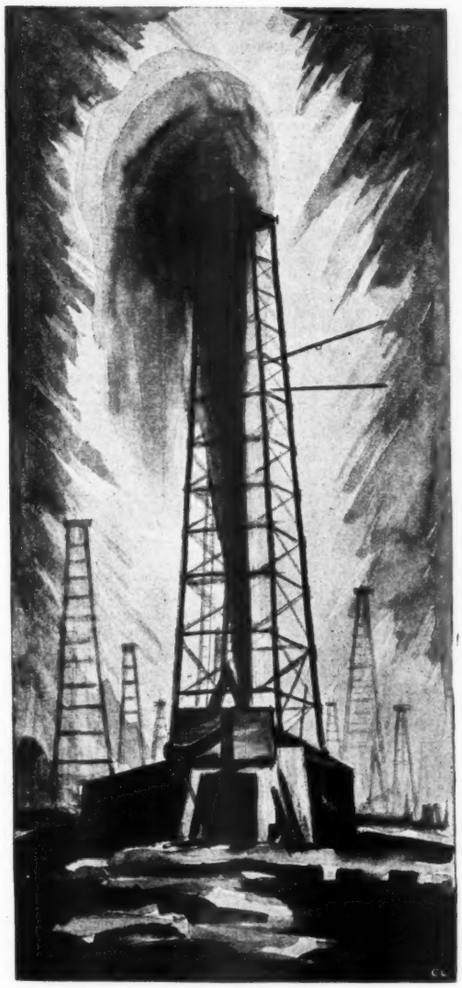
Gulf Production Co.'s No. 3 McFaddin, east flank..... Drlg. sandy shale 5,652 ft.
Humble Oil & Ref. Co.'s No. 2 Breeding, northwest flank. Drlg. sand and clay 139 ft.
Humble Oil & Ref. Co.'s No. 7 Sterling, east flank..... Drlg. sticky shale 4,531 ft.
Humble Oil & Ref. Co.'s No. 2 Sergeant, east flank..... Cmtd. surface csg. 1,154 ft.
Texas Gulf Sulphur Co.'s No. 2 W. A. Carter, B. M. Spinks Sur., 1,483 ft. from N line and 50 ft. from E line of tract ..... Rig.

ORANGE—ORANGE COUNTY

Sinclair Oil & Gas Co.'s No. 5 Granger ..... Comp. pumping 60 bbls. fluid, 50 pct. water, 3,651 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 14 Pratt-Hewitt-Rooke..... Drlg. shale and lime 4,483 ft.
Houston Oil Co.'s No. 4 Mrs. M. H. Ryals ..... Sand and shale showing oil 3,654-64 ft.; set 22 ft. 9-in. screen; swabbing.
Houston Oil Co.'s No. 13 F. V. W. Heard..... Oil sand 3,670-78 ft.; set 22 ft. 6⅝-in. screen; comp. gas well spraying oil; 875 lbs. through ½-in. choke on csg.
Houston Oil Co.'s No. 1 Rooke ..... Drlg. shale 6,227 ft.
Houston Oil Co.'s No. 1 Doughty..... Sand 6,452-65 ft.; set 23 ft. screen; tested salt water; pulled screen and cmtd. bottom of hole; fishing drill stem.
Houston Oil Co.'s No. 3 Rose Lambert..... Drlg. gumbo, shale and lime 2,822 ft.
Houston Oil Co.'s No. 1 O'Brien (D.D.), Blk. 5..... Rig up to deepen, old total depth 5,434 ft.
Ed Jones' No. 3 Mitchell, 200 ft. SW Mission River and 250 ft. SE of road in Blk. 13 ..... Drlg. shale 6,245 ft.
Luling Oil & Gas Co.'s No. 1 City, Blk. 86..... Drlg. shale and lime 5,358 ft.
Luling Oil & Gas Co.'s No. 1 City, Blk. 105..... Oil sand 6,451-59 ft.; cmtd. 6⅝-in. csg. 6,451 ft.; drilled plug and set 10 ft. screen; comp. 960 bbls. oil; 1,050 pounds pressure through 3/16 and ¼-in. chokes.



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Moody-Seagraves-Karona's No. 1 F. Hayser.....Oil sand 6,419-37 ft.; cmtd. 5 3/16-in. csg. 6,425 ft.
Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor.....Coring oil sand 6,432 ft.
Moody-Seagraves Prod. Co.'s No. 7 O'Connor.....Drlg. lime 4,528 ft.
Moody-Seagraves Prod. Co.'s No. 2-A J. F. B. Heard.....Rig.
Moody-Seagraves and Phillips Petroleum Co.'s No. 2 Mercy Academy, 167 ft. from N line and 666 ft. from E line of tract.....Drlg. rock 3,905 ft.
Moody-Seagraves' No. 1-B O'Brien.....Oil sand 6,460 ft.; cmtd. 5 3/16-in. csg. 6,445 ft.
Moody-Seagraves' No. 1 Shelly.....Cmtd. 12½-in. csg. 1,233 ft.
Moody-Seagraves Prod. Co.'s No. 1 Strauch, Blk. 64 (workover).....Oil sand 6,444-55 ft.; cmtd. 5 3/16-in. csg. 6,444 ft.; drlg. plug.
T. P. Morgan's No. 1-B St. John heirs, 200 ft. from N line and 1,558 ft. from E line of lease.....Oil sand 5,617 ft.; cmtd. csg.
Pearson Properties, Inc.'s No. 4 Ryals, Refugio Town-tract, 150 ft. from S line and 190 ft. from W line of Ryals tract.....Sand rock 1,146 ft.; cmtd. 10-in. csg.
Saxet's 4-A Wilson Heard (workover).....Old total depth 1,880 ft.; side-tracking 695 ft.
United Prod. Corp.'s No. 3 Fox (workover).....Cmtd. 9-in. csg. 5,240 ft.
United Prod. Corp.'s (Union) No. 11 Fannie Heard.....Drlg. hard sand 5,647 ft.
United Prod. Corp.'s No. 12 Fannie Heard.....Location.
United Prod. Corp.'s (Union) No. 2 Moss-Powers, Blk. 109.....Derrick.
United Prod. Corp.'s (Union) No. 8 O'Brien.....Oil sand 6,448-57 ft.; set 18 ft. 3-in. screen; comp. 160 bbls. gasoline, 2,100 pounds pressure on tubing and 2,200 pounds on csg. through ¼-in. choke.
United Prod. Corp.'s No. 9 O'Brien, 150 ft. S of S line and 175 ft. E of extended W line of Moody-Seagraves' O'Brien "B" lease.....Location.
United Prod. Corp.'s No. 10 O'Brien, 150 ft. E of E line of Blk. 106, Refugio Townsite, and 428 ft. N of Refugio Town Tract Sur.....Rig.
United Prod. Corp.'s No. 11 O'Brien, 200 ft. from E line and 500 ft. N of extreme S line of lease.....Derrick.
United Prod. Corp.'s No. 3 Powers, Refugio town tract, 250 ft. W of E line and 200 ft. N of S line of lease (workover).....Rig up to deepen, old total depth 5,472 ft.
United Prod. Corp.'s No. 6 Power, S, Blk. 83, Refugio Townsite.....Location.
United Prod. Corp.'s (Union), No. 8 Powers, Blk. 82.....Oil sand 6,448-57 ft.; cmtd. 5 3/16-in. csg. 6,448 ft.; drld. plug and set 8 ft. 3-in. screen.
United Prod. Corp.'s (Union) No. 6 Nancy J. Ryals.....Oil sand 3,644-54 ft.; cmtd. 5¼-in. csg. 3,643 ft.; drld. plug and set 38 ft. 6¼-in. screen.
United Prod. Corp.'s (Union) No. 2-A Rose Lambert, 200 ft. out of SE cor., Blk. 1, of town tract.....Location.
United Prod. Corp.'s No. 2 Mitchell (workover), 150 ft. out of NW cor. Mitchell 150-acre tract.....Drlg. sticky shale 5,599 ft.
United Prod. Corp.'s No. 4 Mitchell (workover), 150 ft. out of NE cor. Mitchell 150-acre tract.....Rig up to deepen, old total depth 5,900 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Martha Moss.....Drlg. sand 3,502 ft.
Vacuum Oil Co.'s No. 9 Bordages.....Drlg. shale and lime 5,944 ft.
Vacuum Oil Co.'s No. 12 Miller (workover).....Total depth 4,421 ft.; bailed salt water 3,711 ft.; drlg. deeper in sticky shale 3,772 ft.
Vacuum Oil Co.'s No. 31 Miller.....Drlg. sticky shale 3,909 ft.
Vacuum Oil Co.'s No. 7 State, 319 ft. N and 260 ft. W. SE cor. NE, Sec. 8-10s-9w.....Derrick.

EDGERLY—CALCASIEU PARISH

Associated Oil Co.'s No. 5 Paraffine.....Sand and shale showing oil 3,714 ft.; set screen.
Rex Petroleum Co.'s No. 8 Hunter.....Set 2 joints 4½-in. screen 3,705 ft.; comp. flowing 300 bbls. pipe line oil on ⅝-in. choke.
Rex Petroleum Co.'s No. 2 Prairie Narroni, Sec. 21-9s-11w, 365 ft. from S line and 50 ft. from E line of lease.....Derrick.

HACKBERRY—CAMERON PARISH

R. E. Seiss' No. 2 J. M. Vincent.....Shut down 510 ft.
The Texas Company's No. 8 State.....Derrick.
Yount Lee Oil Co.'s No. 34 State.....Location.
Yount Lee Oil Co.'s No. 36 State.....Location.
Yount Lee Oil Co.'s No. 37 State.....Location.
Yount Lee Oil Co.'s No. 38 State.....Location.
Yount Lee Oil Co.'s No. 39 State.....Location.

VINTON—CALCASIEU PARISH

Vinton Pet. Co. (Lucky Ten) No. 1 Lizzo.....Total depth 3,326 ft.; set 16 ft. of 3-in. screen 3,104 ft.; put on pump and sanded up; pulling screen to deepen.
Vinton Pet. Co.'s No. 10 Matilda Gray (workover).....Bailed salt water 3,737 ft.; side-tracked 3,200 ft. and drlg. sand 3,303 ft.
Wilson-Broach's No. 7 Wilson.....Drlg. sand showing oil 3,408 ft.

BAYOU BOUILLON—ST. MARTIN PARISH

Humble Oil & Ref. Co.'s No. 1 Woodyard Lake.....Total depth 6,061 ft.; sidetracking in sandy lime 5,452 ft.
Humble Oil & Ref. Co.'s No. 4 State.....Total depth 4,477 ft.; sidetracked to sand showing oil 4,406 ft.; cmtd. 9⅝-in. csg.; drld. plug and waiting blowout preventer.

SWEET LAKE—CAMERON PARISH

Magnolia Pet. Co.'s No. 2 Sweet Lake, Sec. 5-13s-7w.....Spudded.
Pure Oil Co.'s No. 10 Yount Lee.....Drlg. sand showing oil 6,830 ft.

FORT BARRE—ST. LANDRY PARISH

Gulf Ref. Co.'s No. 4-A Hoskins.....Abandoned in salt 3,894 ft.
The Texas Company's No. 9 Botney Bay.....Location.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 19 United Land Co.....Drlg. gumbo 1,629 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 749 fee (workover).....Total depth 5,316 ft. in salt; sidetracked and drlg. gumbo 3,949 ft.
Union Sulphur Co.'s No. 762 fee (workover).....Fishing drill stem 5,500 ft.
Union Sulphur Co.'s No. 765 fee, Sec. 25-9s-10w.....Rig.
Union Sulphur Co.'s No. 766 fee, Sec. 29-9s-10w.....Location.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe.....Drlg. shale and calcite 6,008 ft.
O'Hara et al's No. 1 Schrader.....Shut down 3,342 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur.....Total depth 7,584 ft.; sidetracking sand 7,311 ft.
Mills Bennett Prod. Co.'s No. 3 Allen, Allen.....Drlg. salt 3,434 ft.
Mills Bennett Prod. Co.'s No. 2 Reece, Allen.....Drlg. hard sand and rock 4,201 ft.
Mills Bennett Prod. Co.'s No. 2 Random, Allen.....Drlg. sandy shale 4,689 ft.
Faust et al's No. 5 Faust.....Set 68 ft. 4½-in. perforated pipe 6,220 ft.; flowed fresh water; fishing wash pipe.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights.....Heaving shale 5,260 ft.
Layne et al's No. 7-A Wisdom, Damon Mound.....Blue shale 3,545 ft.; drill stem stuck.
Amerada Pet. Corp.'s (Rycade) No. 2 Seaburn, Stratton Ridge.....No report; previous depth 6,486 ft. in lime.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur.....Drlg. shale and lime 1,375 ft.

BURLESON COUNTY

Mid-South Oil Co.'s No. 1 Duckworth.....Tested brackish water 2,601 ft.; shut down.

CALHOUN COUNTY

The Texas Company's No. 1 Smith, J. Timmons Sur., Will Mousin and Driscoll Sub.....Drlg. 276 ft.

COLORADO COUNTY

A. H. Eaton et al's No. 1 A. R. Sureck.....Drlg. sand and shale 1,800 ft.

GRIMES COUNTY

Deerings & Noble's No. 1 Templeton, 6 miles south of Navasota.....Drlg. sand 4,231 ft.

HARRIS COUNTY

Gulf States Oil Co.'s No. 1 Angsperger.....No report; previously reported depth 4,652 ft.
Humble Oil & Ref. Co.'s No. 1 Gehring, Mykawa.....Deepened from 4,783 ft. to 4,904 ft.; set 61 ft. 4½-in. screen; swabbed 154 bbls. first 24 hrs.; put on pump and comp. pumping 67 bbls. daily.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa.....Drlg. hard sand 6,074 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur.....Rig.
Sloane Prospecting Co.'s No. 1 Ulrich, Cedar Bayou.....Drlg. sticky shale 4,630 ft.

JACKSON COUNTY

Chicago-Gulf Co.'s No. 1 Rogers (workover).....Rig up to deepen 3,662 ft.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur.....Drlg. shale 3,600 ft.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234.....Drlg. sand 4,204 ft.
Keith et al's No. 1 Reed-Hankamer.....Drlg. sand 3,109 ft.
The Texas Company's No. 4 Pipkin, Big Hill.....Drlg. hard sand 4,338 ft.

LIBERTY COUNTY

Hamm et al's No. 1 Harvard, Davis Hill.....Gumbo 1,015 ft.; shut down.
J. R. Ingram's No. 1 Hornbeck, Clayton, Harper Sur.....Drlg. sand 4,107 ft.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4.....Gumbo 560 ft.; shut down.

MATAGORDA COUNTY

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott.....Set 47 ft. 4½-in. screen 5,221 ft.; tested salt water.
Empire Gas & Fuel Co.'s No. 1 Boker, Citrus Grove.....Total depth 6,295 ft.; plugged to 5,320 ft.

MONTGOMERY COUNTY

John Deering et al's No. 1 Knight, D. F. Wilden Sur., 125 ft. out of SE cor., J. A. Knight 320-acre tract.....Gumbo 1,429 ft.; cmtd. 10-in. csg.
Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe.....Shut down 678 ft.; gumbo.
Price & Wilhite's No. 2 Guerges.....Drlg. sticky shale 3,155 ft.

NACOGDOCHES COUNTY

E. L. Burk et al's No. 1 Latimer, Jose De Los Santos Sur.....Shut down 4,204 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 Miller Vidor Lbr. Co., E Lewis Sur. No. 385.....Drlg. shale and lime 5,739 ft.
Crew Oil Co.'s No. 1 Mansfield.....Sand showing oil 675-700 ft.; set 1 jt. screen; flowed fresh water.

SAN JACINTO COUNTY

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs.....Spudded.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell.....Sand and shale showing oil 1,256 ft.; cmtd. 6-in. csg. 1,218 ft.
Texas Southern Petroleum Co.'s No. 3 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line.....Sand and shale 4,586 ft.; shut down for repairs.
Lew Wentz' No. 1 Long Bell, 800 varas E and 100 varas N from SW cor. James Seals Sur.....Moving in.

VICTORIA COUNTY

Newton et al's No. 1 West.....Shut down 1,550 ft.
The Texas Company's No. 2 McFaddin, C. M. B. Hoyd Sur.....Total depth 2,025 ft. in gumbo; blew in from sand at 2,000 ft.; estimated 30,000,000 ft. gas and 4,000 bbls. fresh water; to be completed through drill stem.
United Gas Corp.'s No. 1-B McFaddin, M Traviesa Sur., 3,700 ft. E and 500 ft. N from NE cor. C. O. Edwards Sur.....Derrick.

WASHINGTON COUNTY

Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur.....Drlg. shale 748 ft.
Vegua Oil Co.'s No. 1 P. Graves, S. Clampet Sur.....Rig.
Oliver Drlg. Co.'s No. 1-A Hahn, J. H. Alcorn Sur. A-3.....Drlg. sand and shale 1,598 ft.

WHARTON COUNTY

H. H. Givans' No. 2 Hudgins.....Sand rock 367 ft.; set 6⅝-in. csg. 296 ft.

SOUTH LOUISIANA

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w.....Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w.....Set 6⅝-in. csg. with 172 ft. 6⅝-in. screen on bottom, 6,568 ft.; drlg. plug; preparing to bail.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w.....Shut down 3,258 ft.
Dr. Thomas et al's No. 1 John Hewitt.....Location.

CAMERON PARISH

Shell Petroleum Corp.'s No. 2 State, Black Bayou.....Tested salt water 4,025-53 ft.; coring sand 4,178 ft.
Shell Petroleum Corp.'s No. 12 Watkins (workover).....Rig up to workover, 5,321 ft.
Shell Petroleum Corp.'s No. 16 Watkins, Black Bayou.....Coring sand showing oil 4,213 ft.
Vacuum Oil Co.'s No. 2 Cameron Meadows, 3,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500 ft. S No. 1).....Rig.
The Texas Company's No. 7 State, Calcasieu Lake.....Location.

IBERIA PARISH

The Texas Company's No. 6 Vermillion Bay.....Drlg. gumbo 2,892 ft.
Jefferson Lake Oil Co.'s No. 10 Lake Peigneur, Jefferson Island.....Hard broken rock 1,889 ft.
Jefferson Lake Oil Co.'s No. 1 Lake Peigneur, Jefferson Island.....Derrick.

IBERVILLE PARISH

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou.....Sandy shale 4,040 ft.; fishing drill stem.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue.....Derrick.
Standard Oil Co.'s No. 8 Wilbert, Bayou Des Glaise.....Drlg. sand rock 4,284 ft.
Standard Oil Co.'s No. 9 Wilbert, Bayou Des Glaise.....Piling capped.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise.....Location.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue.....Sandy gumbo 5,426 ft.; shut down for repairs.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue.....Gumbo 670 ft.; cmtd. 13⅜-in. csg.; repairing rig.

JEFFERSON DAVIS PARISH

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w.....Drlg. sandy shale 4,729 ft.
A. V. Peters' No. 1 Smith Subd., Welsh, 1,050 ft. N and 180 ft. E SW cor. Sec. 22-9s-5w.....Location.

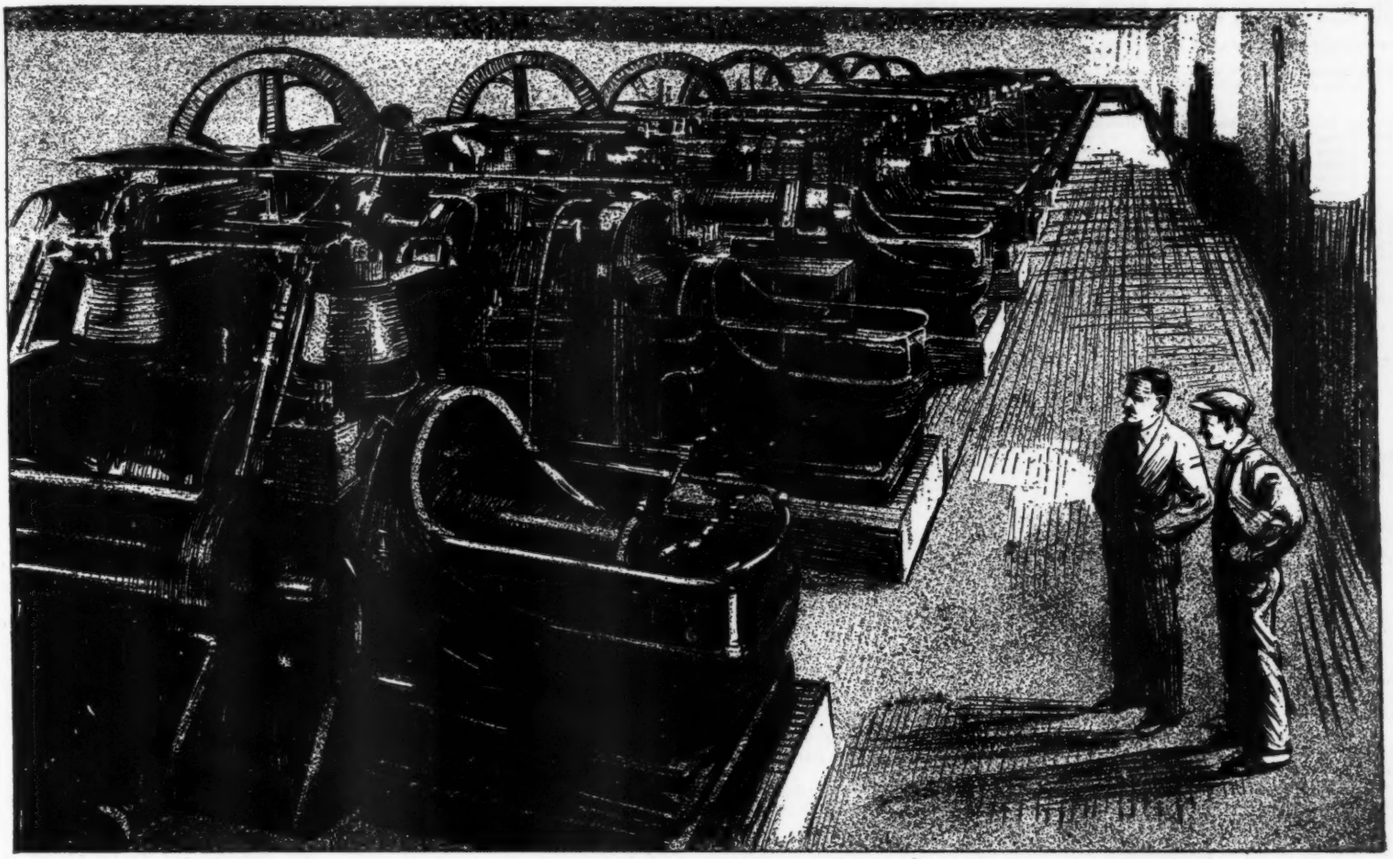
LA FOURCHE PARISH

The Texas Company's No. 2 Leesville.....Set 42 ft. 10 inches 4⅝-in. screen 1 ft. 8 inches off bottom at 3,028 ft.; comp. flowing 317 bbls., 1/5 pct. water, on ¾-in. choke; pressure 260 pounds.

PLAQUEMINES PARISH

Gulf Ref. Co.'s No. 2-B Buras Levee Board.....Drlg. cap rock 2,244 ft.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille.....Drlg. sandy shale 4,731 ft.
The Texas Company's No. 4 State, Garden Island.....Hard sand 5,618 ft.; drill stem stuck; abandoned.
The Texas Company's No. 5 State, Garden Island.....Location.

THROUGH MIGHTY MACHINES



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AMERICAN INDUSTRY NEEDS MORE NATURAL GAS

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Jacobs, Sec. 28-11s-6e ..... Tested salt water 1,834 ft.; trying to sidetrack stuck drill stem.

ST. MARTIN PARISH

Harrison & Abercrombie's No. 1-A Barras, Sec. 66-11s-6e.. Drlg. shale and lime 6,077 ft.
The Texas Company's No. 3 Iberville Land ..... Sand and lime 5,079 ft.; abnd.
The Texas Company's No. 4 St. Martin, Hager ..... Abandoned location.
The Texas Company's No. 5 St. Martin, Hager ..... Abnd. in salt 3,450-5,004 ft.

ST. TAMMANY PARISH

Washington-St. Tammany's No. 2 Cossack, S-c. 5-6s-10e.. Shut down in gumbo 2,031 ft.

TANGIPAHOA PARISH

Joan Development Co.'s No. 1 Lake Superior, Sec. 20-5s-9e, 540 ft. E, 675 ft. N of SW cor. ..... Total depth 3,035 ft.; trying to set csg.

TERREBONNE PARISH

United Prod. Corp.'s No. 9 Minor, Houma ..... Drlg. shale 4,988 ft.
The Texas Company's No. 4 State, Caillous Island ..... Driving piling.
The Texas Company's No. 6 State, Caillous Island ..... Caping piling.
The Texas Company's No. 1 L.L.&E., Bay St. Elaine ..... Drlg. hard sand and lime 4,500 ft.
The Texas Company's No. 6 State, Bay St. Elaine ..... Location.
The Texas Company's No. 4 State, Dog Lake ..... Driving piling.
The Texas Company's No. 5 State, Four Isle ..... Derrick.
The Texas Company's No. 2 La. L. & E., Bay Junop .... Hard sand rock 7,034 ft.; abnd.
The Texas Company's No. 3 La. L. & E., Bay Junop .... Location.
The Texas Company's No. 4 La. L. & E., Bay Junop .... Location.
The Texas Company's No. 6 State, Lake Barre ..... Location.
The Texas Company's No. 8 State, Lake Barre ..... Drlg. sandy shale 4,149 ft.
The Texas Company's No. 9 State, Lake Barre ..... Capping piling.
The Texas Company's No. 5 State, Lake Pelto ..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Southwest, Louisiana Land Co., Gueydan ..... Drlg. sand and shale 5,322 ft.

CANADIAN FIELDS

(Continued from Page 44)

Sunburst sand below 2,230 feet with some gas.

Turner Valley Field

In the Central Turner Valley Field, Illinois-Alberta Oils' No. 1, LSD 14, Section 12-20-3w5, was shot in the lime with 80 quarts after recovering lost bit. Following the shot a strong gas flow developed; the well has been put on the separator and is reported making better than 50 bbls. a day, with prospects of ultimately recovering its original flow of around 100 bbls. As soon as No. 1 is in definite production, Illinois-Alberta's No. 2, same LSD, which has been standing at 3,683 feet will be deepened into the lime.

In the same section, New McDougall-Segur Oil Co.'s No. 3, LSD 14, is deepening from 374 feet in the lime at 5,796 feet depth with a small gas production. Widney Petroleums' No. 1, LSD 11, is drilling more than 490 feet in the lime around 5,500 feet. The test has some gas, with an estimated potential recovery of 40 bbls. of crude naphtha, as well as about 9 bbls. of light crude from the upper sands; and it may be shot after going a little deeper in the lime. British Dominion Oil & Development Corp.'s No. 3, LSD 6, is reported drilling below 5,050 feet.

In Section 1-20-3w5, McLeod Oil Co.'s No. 3, LSD 16, is cleaning out and deepening to restore production. When this is completed the outfit will be moved to McLeod's No. 5, LSD 15, which will be deepened from 5,186 feet. Okalta Oils' No. 2, LSD 8, is testing production on the separator after drilling out the bridge which formed after a shot at 5,095 feet. Structure Oil & Gas' No. 1, LSD 7, Section 31-19-2w5, is testing production in the lime at 5,200 feet.

In the North Turner Valley, United Oils' No. 4, LSD 2, Section 24-20-3w5, has recovered tools and is preparing to resume deepening from 4,900 feet.

Model Oils' No. 1, LSD 8, Section 22-20-3w5, one of the two deep lime producers in the north end, has given a rather interesting performance. It got production last March in the deep lime after drilling to 5,897 feet, with an initial crude naphtha recovery around 90 bbls. a day. This has been steadily increasing till the January deliveries showed an average of slightly better than 195 bbls. a day, or more than double the initial production.

Owing to the deeper drilling required and the less spectacular results, the north end of the Turner Valley has seen relatively little activity, and a considerable number of tests started in 1929 stood idle throughout 1930. Apart from tests in the Spooner area, which is generally treated as on the northern end of the Central Field, the only test now active in the North Turner Valley is United Oils' No. 4. The two deep lime producers, Model's No. 1 and Foothills Oil & Gas Co.'s No. 1, have, however, both proven steady and consistent producers, the latter having been in steady production for several years. No trouble with freezing has been reported.

In the South Turner Valley, Commonwealth Petroleums' No. 1, LSD 7, Section 9-19-2w5, is drilling 350 feet in the lime at 4,960 feet depth with a slight increase in wet gas.

In Section 16-19-2w5, East Crest Oil Co.'s No. 3, LSD 4, is drilling below 2,467 feet and logging about 300 feet higher on structure than East Crest's No. 2-A, the big producer, to which it is an offset. This test should get the lime early in April. In LSD 9, Section 28-18-2w5, Freehold Oil Corp.'s No. 4 is reported to have derrick up.

Imperial Drilling

In South Turner Valley, Southern Lowery's No. 1, LSD 3, Section 9-19-2w5, which has been testing the lime at 4,857 feet, failed to develop satisfactory production and is being shot. Southern Lowery's No. 2, LSD 13, is at 1,292 feet and installing rotary for deeper drilling. Southern Lowery's No. 3, LSD 4, is drilling at 500 feet.

Merland Oil Co.'s No. 1, Section 27-18-2w5, has completed preliminary investigation of the hole and the Imperial drillers are preparing to sidetrack some of the lost tools preparatory to deepening from 4,878 feet.

In Section 17-19-2w5, Lowery Petroleums' No. 2 is drilling 455 feet in the lime at 5,596 feet depth. Mayland Oil Co.'s No. 4 is at 2,290 feet and rigging up rotary. Mayland's No. 6 is drilling at 3,747 feet. Southwest Petroleums' No. 2, Section 8-19-2w5, is drilling at 3,227 feet.

On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is fishing at 2,835 feet, with a considerable gas flow from the Devonian lime.

In the Taber area it is reported that interests associated with the Majestic Mine may drill a commercial test for oil. Last year three structure tests were drilled on the Valgardson farms west and about 4 miles south of Taber, and these are reported to have yielded promising indications.

It is reported that some core drilling is being done by Lethbridge interests in the Twin River district.

On the Reserve Dome, Mayland Syndicate's No. 1, LSD 13, Section 4-1-9w4, is reported preparing to spud in.

The J. W. Leonard interests of Washington, Pa., are reported to have leased some acreage in southern Alberta preparatory to extending their operations into Canada. J. D. Leonard of Billings, Mont., is western manager for the Leonard interests, and will probably oversee the Alberta operations.

Hudson's Bay Tests

In the Keho Lake district, southern Alberta, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is drilling at 3,050 feet. In the Castor area, Hudson's Bay's No. 1 Paintearth, LSD 5, Section 27-39-15w4, is drilling at 3,628 feet.

Medicine Hat Gasser

In the Medicine Hat gas field, a considerable extension to the proven area is indicated by a test drilled for the municipality of Medicine Hat by W. J. Perry. The location is northeast of the city, some 2½ miles from the nearest main, in an area previously untested. Drilling has been in progress for several months and the test recently got the first sand with a flow of around 500,000 feet a day. The second sand, which is the main source of supply in the Medicine Hat Field, is expected to show around 2,500,000 feet, and the test is now being deepened to this horizon.

Shareholders of Lethbridge Petroleum & Refining Co., Ltd., held their annual meeting recently when the following directors were elected: S. H. Adams, Italo Rader, J. DeMan, H. R. Chauncey, Charles Knight, J. E. McGaughey. T. M. Jones was elected secretary-treasurer.

In the Wainwright Field, Atkins Syndicate's No. 1, LSD 9, Section 18-45-6w4, has derrick up and is installing machinery from the Senator Oil & Gas Co.'s outfit in E half, Section 23-44-6w4. The Senator test may resume work after completion of the Atkins test.

Saskatchewan Test

In the Pilot Butte area, Aladdin Oil & Gas Co.'s No. 1, Township 17-18w2, is rigging up.

British Columbia Drilling

In the Steveston area, British Columbia, International Pipe Line Co.'s No. 2 on Lulu Island has been drilled to 1,000 feet with a light outfit and is securing heavy rotary equipment for deeper drilling. In the Sumas Prairie district, International's No. 3, Section 22-22-19-5e, is reported drilling below 300 feet.

Manitoba Test

In southwestern Manitoba, Commonwealth Petroleums' No. 1, near Manitou, is reported drilling around 810 feet and having considerable trouble with quicksand.

Western Canada Crude Cut

Effective February 12, Imperial Oil, Ltd., and Regal Oil & Refining Co. in Calgary, have announced a new and reduced schedule of prices for crude naphtha and light crude oil produced from wells in Alberta. The comparative prices per barrel are:

	Old price	New price
Clear naphtha	$3.69	$3.19
Discolored naphtha	3.45	2.95
Crude 50° A.P.I. and higher	3.10	2.71
Crude 45 to 50° A.P.I.	2.40	2.12

Announcement by Floyd Huff, manager of the Regal refinery, states: "There are two factors leading to the decision to reduce the prices paid to producers. The price of gasoline has been reduced 2 cents in the past four months; also, Turner Valley at present is producing more gasoline than is consumed in Alberta. As a consequence this gasoline has to be shipped out of the province and freight rates must be considered in setting prices."

Ontario Drilling

In Norfolk County, Ontario, Acme Gas & Oil Co. of Toronto drilling on the Heemer farm 6 miles east of Tillsonburg encountered a fair gas flow, estimated 450,000 feet, in a sand at 1,270-80 feet. A new location has been made 1,500 feet from the first well.

In Mosa Township, Middlesex County, Southern Ontario Gas Co.'s No. 7 is reported rigged up in SW Lot 14, Concession 3. In Dawn Township, Lambton County, Union Natural Gas Co.'s No. 56, Christner farm, Lot 22, Concession 10 Dawn, is spudding. In the D'Clute Field, Kent County, American Engineering Co.'s No. 4, Simpson farm, Lot 148, South Talbot Road, Raleigh Township, is reported rigged up. In the Tilbury Field, Southern Ontario Gas Co. has located a test on the Authier farm, N half Lot 10, Concession 12, Tilbury East Township. In the old Fletcher oil area, Argo Oil & Gas Co.'s No. 2, Lot 2, Concession A, Raleigh Township, is reported drilling.

It is reported that a wildcat will be started shortly in Gray County on the Theodore Johnston farm, town line, St. Vincent Township. The Penn-Ryan syndicate is reported to have contracted with M. S. Bellamy of Owen Sound for the test, drilling to commence about March 1. A test will also be drilled on the Brown farm, Concession 9, near Meaford.

Olga Gas & Oil Co. of Toronto is reported planning to do some drilling in Raleigh Township, probably in proximity to the new D'Clute Field.

CALIFORNIA FIELDS

(Continued from Page 48)

Santa Fe Springs Field upon notice of an appeal to the United States Supreme Court by the Wilshire group. Constitutionality of the California gas conservation law, under which the injunction was granted, is attacked on the same grounds which has already failed to afford relief from a legal standpoint in three different courts. Continued litigation has prevented enforcement of the gas law, notwithstanding that the California Superior Court, District Court of Appeals and California Supreme Court have upheld its constitutionality.

Only one substantial producer was completed in the Long Beach Field of Los Angeles Basin during the week, the Plymouth Oil Co.'s No. 11 Signal, which was brought in flowing at the rate of 500 bbls. Dabney-Johnston Oil Corp. completed No. 80 Signal doing 270 bbls. of 25.1 gravity oil per day from 8,000 feet, the hole having been plugged back from 8,415 feet because of bottom water. Drilling operations have shown a substantial reduction in the Long Beach Field for several weeks and a further decline is expected from now on.

Ventura Avenue

The Shell Oil Co. added a new well in the Ventura Avenue Field during the week. This was No. 61 Taylor, originally drilled to 7,000 feet but subsequently plugged back with 490 sacks of cement to 5,977 feet. It failed to result in a natural flow and the company was obliged to bring in this new well on gas lift doing 420 bbls. of 28.1 gravity oil per day. This is the first well which the Shell has completed in the Ventura Avenue for several weeks but it is expected the company will make up for lost time during the next 60 days. The Associated is also expected to chalk up several new producers as No. 40 Lloyd, No. 57 Lloyd, No. 104 Lloyd, No. 10 McGonigle and No. 2 V. L. and W. are all rotating in the oil sand at present.

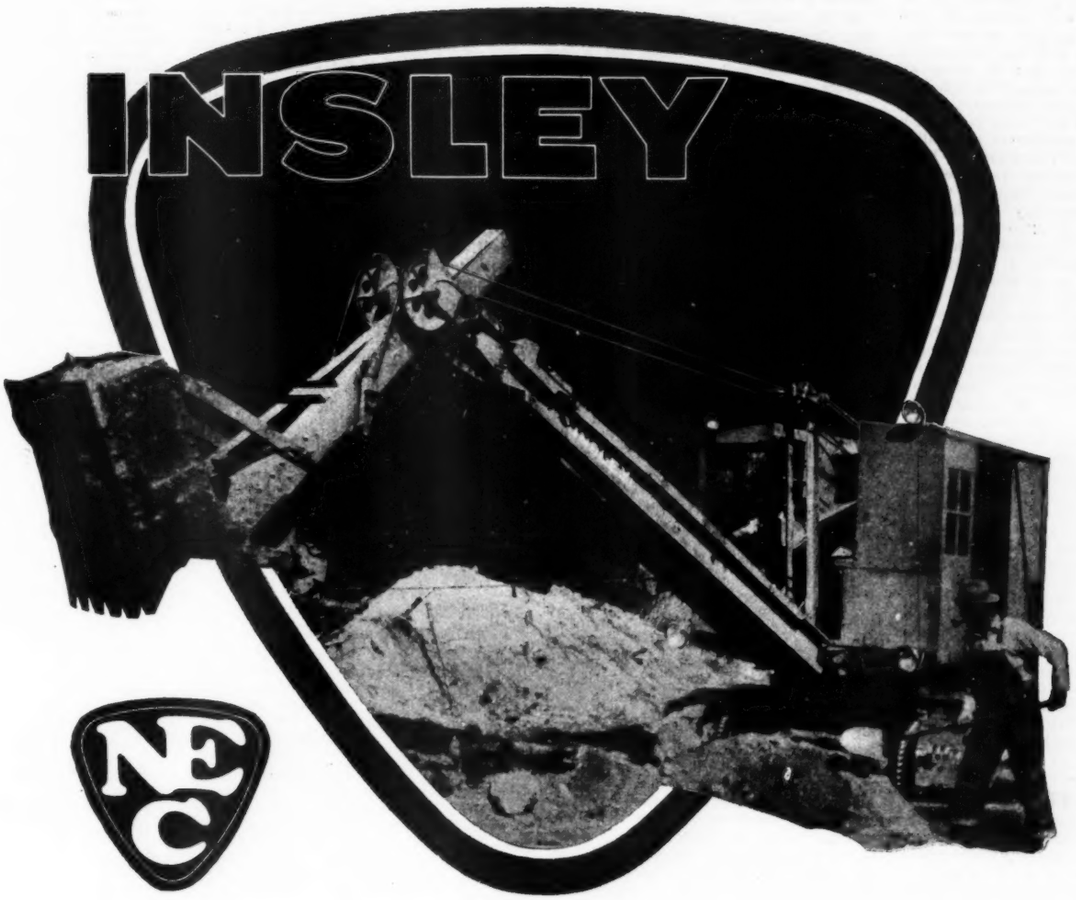
Elwood Field

The Barnsdall and Rio Grande picked up the top of the Sespe in No. 14 Bell Luton, a deep test in the eastern part of the Elwood Field of Santa Barbara County, at 3,800 feet, and this hole will be carried down to determine the possibility of securing commercial production in the Sespe. No. 1 Bishop Evans in the northeastern part of the field is also in the Sespe at 4,368 feet but will be deepened still farther notwithstanding that a few years ago drilling would have been stopped immediately upon encountering the Sespe, as this formation was considered of no consequence at that time. The success of the General Petroleum in developing Sespe production in the Capitan Field of Santa Barbara County has changed the status of this formation within the past 60 days. The Irvine Oil Co. is expected to complete No. 1 Lowe, a new well in the Santa Barbara Mesa Field, the next few days and commercial production should be secured if the core samples are any criterion of the well's potentiality.

Lost Hills-Belridge

The logging of Temblor formation in the North Belridge Field of Kern County by the Union and Ohio Oil Companies enhances the value of that field, as both companies should develop commercial production shortly. The Union's well has been running favorably and, on the basis of showings, should register larger production than the Belridge Oil Co.'s deep zone discovery, No. 15 Belridge. The Ohio Oil Co.'s No. 1 Bloemer is approximately 700 feet deeper stratigraphically than the initial deep zone completion, and this condition previous to encountering the top of the Temblor was causing Ohio officials no little concern. Now that the Union Oil Co. has proved the existence of the Temblor in the eastern end of the North Belridge Field, the Continental Oil Co. will speed up plans to drill its projected offset on the Result property in Section 36-27-20.

The coring of the Temblor by the Union and Ohio extends the proven limits of the North Belridge Field a little over



On Important Pipe Line Jobs

ON the Ajax Line built in 1930 there were twelve Insleys within two hundred miles.

On the Continental Line built at the same time there were nine Insleys.

On the Missouri-Kansas Line there were seven Insleys.

On the Gulf Pipe Line there were six Insleys.

On the Dakota-Montana Line there were five Insleys.

And there were many other Insleys on smaller lines that earned just as much for their owners as did those on the big lines.

• • •

Here is visible proof of the recognized value of Half-Yard Insleys on pipe line work.

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a mile southeast of the original completion. The failure of the Richfield Oil Co. to secure production in No. 1 Belridge in Section 22-27-20 definitely limits the production trend to the northwest. The discovery well, No. 15 Belridge, registered a substantial increase in daily production during the week. Latest reports indicate this well is producing 4,640 bbls. of exceptionally clean 41.8 gravity oil and 2,380,000 feet of natural gas per day. Production of this well has consistently built up during the past 15 days, although only a minor adjustment has been made in the mechanical hookup.

The Mohawk Oil Co. failed to effect a satisfactory water shut-off in its drilling project in the Weed Patch area of Kern County, notwithstanding three cement jobs. It is the present intention to suspend drilling temporarily pending the outcome of work on other wells under way in the immediate section. The Shell is drilling ahead in No. 1 Porter Day, the discovery well, in an effort to determine the possibility of securing deep Temblor production. The Chanslor-Canfield Midway Oil Co. recently acquired a lease on 160 acres in the southwest quarter of Section 34-30-29, southeast of the Shell's discovery well in the Weed Patch district, approximately 10 miles southeast of Bakersfield. The company controls about 750 acres in this general locality but has no intention of engaging in immediate development, at least not until further work is completed in the section now undergoing development. The Thirty Corp., Ltd., is constructing a road to a new drilling site north of the Kern River Field in Section 13-28-27, and drilling operations are scheduled to be started soon. The well to be drilled by this company is on property of the Fresno Montana Co. and will result in the discovery of an entirely new field if commercial production is secured. The Universal Consolidated is drilling its No. 49 in the Lost Hills Field of Kern County, following the inability to exclude water a week or so ago, and satisfactory footage is being made.

SOUTHWEST TEXAS FIELDS

(Continued from Page 40)

son have rigged up and are about ready to go on with No. 1 J. E. Harris in Bastrop County, northeast of the Lytton Springs Field. The test is being drilled on the theory of a serpentine plug and it will not drill very deep.

Pettus Area

Some interesting tests are starting in the Pettus area. United Production Co.'s No. 31 Ray is being drilled midway between the Pettus Townsite Pool on the west and the Ray-McKinney Pool on the east. The distance is about 2 miles and this test may prove the intervening territory.

The same company's No. 32 Ray in the Habbermacher Survey, a few miles north of the Pettus Townsite Pool, got salt water at 3,692-3,701 feet at a depth where William F. Morgan completed a gas well a year ago and where United Production Co.'s No. 13 Ray came in an oil well. No. 32 is 660 feet south of No. 13.

The company is feeling around also in other sections for limits of pools. Its No. 34 Ray in the Thomas Hanson Survey is the farthest east test east of the Ray-McKinney Pool and it is drilling at around 3,000 feet with another 900 feet to go.

OKLAHOMA FIELDS

(Continued from Page 33)

14, Okmulgee County, in the Bald Hill area, is estimated at 25 bbls. a day from the Booch sand at 1,151-61 feet. The sand was shot with 80 quarts.

In Southern Fields

In southern Oklahoma, Stephens County has three tests waiting for cement with casing landed on top of the oil sands. A wildcat test north of the Oil City Field was showing gas from a deep horizon. The test was Crane & Rankin's No. 1 Adkins, NE cor. SE, Section 14-1-9w, which is approximately 600 feet below the present producing levels in the area and is in sand from 2,880-2,917 feet. Operators are attempting to get a drill stem test of formation.

George Pace's No. 9 Watkins, NE cor. SE SE, Section 21-2s-7w, in the pool east of Comanche, has cemented casing to test the oil sand at 1,716-21 feet. The test offsets a 500-bbl. well.

S. B. Cooper and others' No. 1 Duncan, NW cor. NE, Section 28-2s-7w, south of the Watkins lease, has landed casing to test broken sand found at 1,688-99 feet.

George Pace's No. 5 Bush, SE cor. NE NW, Section 3-2s-8w, southeast of the Empire Field, has cemented casing to test a showing of oil found at 1,634-40 feet. A. L. Andree and others' No. 1 Patrick, C E half SE, Section 3-3s-8w, a wildcat, was shut down at 1,860 feet. Paul Turner and others' No. 1 Andrews, NW cor. SW SW, Section 5-2s-7w, a wildcat was shut down at 1,827 feet. The deepest test in the area is Junior Oil Co.'s No. 1 Thompson, NE cor. SW SE, Section 1-1-7w, a wildcat which reached a total depth of 3,325 feet and was shut down.

Obermeyer and others' No. 1 Skelton, NE cor. SW SW, Section 32-1s-7w, a wildcat in the area, was shut down at 1,375 feet. Ross Southard and others' No. 1 McKinney, NE cor., Section 25-1-8w, a wildcat in the western part of the county, was shut down at 1,063 feet.

The Tatums Pool in Carter County was extended during the week by a new well 2 miles to the southeast of production. The extension well was Frank Gouin and others' No. 1 Burton, SE cor. SW NE Section 31-1s-2w, pumping 109 bbls. the first 24 hours. The second 24 hours' gauge was 60 bbls. and the operators are reconditioning the well in an effort to increase the production. The oil was found in sand from 1,834-1,962 feet.

Magnolia Petroleum Co.'s No. 9 Gill, SW cor. SE NE Section 23-1s-3w, in the main part of the field, swabbed 75 bbls. of oil on its initial 24-hour gauge. The oil was found in a series of sands at 2,260-2,551 feet. The well was shut in for the proration period.

C. L. Anderson and others' No. 8 Eaves, SE cor. NW SW Section 24-1s-3w, in the south end of the field, was drilling deeper at 2,700 feet. The test found a series of sands at 2,370-2,500 feet, and the casing was cemented at 2,350 feet. The showing of oil was not sufficient to make a commercial well.

Magnolia Petroleum Co.'s No. 4 Dickerson, SE cor. NE Section 24-1s-3w, on the east side of the field, cemented casing on top of an oil sand at 1,915 feet and the total depth was 1,931 feet. Same company's No. 1 McCrory, SE cor. Section 10-1s-3w, northwest of production in the field, was bailing. The test was plugged back to 2,680 feet to test a sand at 2,353-83 feet. No estimate was made of the showing.

Carter Oil Co. and others' No. 2 Hooks, NE cor. SE NE Section 24-1s-3w, was drilling at 800 feet. Amos Drilling Co.'s No. 2 Hooks, SW cor. SE SE Section 13-1s-3w, on the north side of the field, has resumed drilling at 1,155 feet after being shut down on account of water shortage.

Phillips Petroleum Co.'s No. 1 Blazier, NE cor. SE NW, Section 10-11-3w, Oklahoma City, made 8,324 bbls. of oil in four hours from the Wilcox sand at 6,320-6,500 feet. The gas was estimated at 36,000,000 feet a day. Indian Territory Illuminating Oil Co.'s No. 2 Viewpoint, SW cor. SE SE, Section 10-11-3w, produced 5,663 bbls. of oil in four hours from the Wilcox sand at 6,390-6,480 feet. The gas was estimated at 29,000,000 feet a day. The well was produced against a back pressure of 300 pounds through two 2½-inch chokes. Same company's No. 4 Viewpoint, SW cor. SE, Section 10-11-3w, made 7,500 bbls. in four hours from the Wilcox sand at 6,338-6,488 feet. The gas was estimated at 35,000,000 feet a day. Same company's No. 1 Terrace Lawn, NW cor. NE NE, Section 10-11-3w, flowed 6,193 bbls. in four hours from the Wilcox sand at 6,266-6,365 feet. The gas was estimated at 24,000,000 feet a day.

Oil, Inc.'s No. 1 Hathaway, SE cor. SW NW, Section 2-11-3w, made 7,596 bbls. of oil in 3 hours and 10 minutes from the Wilcox sand at 6,230-85 feet, with a total depth of 6,490 feet. Tom Slick Oil Co.'s No. 1 Whitfield, SW cor. SE SE, Section 34-12-3w, flowed 7,938 bbls. of oil in four hours from the Wilcox sand at 6,230-6,485 feet. The gas was estimated at 49,000,000 feet a day. Empire Oil & Refining Co.'s No. 1 Refinery, SE cor. NE NW, Section 3-11-3w, made 2,054 bbls. of oil in 2¾ hours and 23,000,000 feet of gas a day from the Wilcox sand at 6,312-6,485 feet. Anderson-Prichard Oil Corp. and others' No. 1 Sandness, NE cor. SE NW, Section 10-11-3w, flowed 6,932 bbls. of oil in four hours from the Wilcox sand at 6,316-6,519 feet.

Greater Seminole Production

The production from the Greater Seminole area for the week ending February 16, averaged 205,785 bbls. a day from 2,860 wells. The first 12 pools listed below comprise the Seminole area, which averaged 142,711 bbls. a day from 1,870 wells.

Pool—	Wells	Bbls.
Little River	369	24,936
East Little River	82	9,556
Carr City	78	14,815
Maud	133	3,426
Mission	93	8,401
Bowlegs	278	13,747
Earlsboro	383	17,606
South Earlsboro	27	8,195
East Earlsboro	158	21,722
Seminole	254	13,580
East Seminole	33	1,933
Searight	82	5,794
Total	1,870	142,711
Allen	277	12,595
Asher	26	761
Wannette	54	8,523
Konawa	111	15,650
Sasakwa	50	3,848
St. Louis	472	21,697
Grand total	2,860	205,785

Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area totaled 181,488 bbls. for the week ending February 16. The daily average shipments by companies were as follows:

Company—	Seminole (bbls.)	Pearson, St. Louis, Asher (bbls.)	Konawa (bbls.)
Barnsdall	2,391	....	....
Champlin	3,470	....	870
Cosden	7,312	....	2,925
Consolidated	....	2,622	....
Deep Rock	2,152	1,604	....
Empire	6,325	....	....
Gulf	27,555	3,766	678
Magnolia	70,140	5,226	2,968
Oklahoma	19,466	163	148
Phillips	956	....	....
Prairie	3,289	1,802	791
Prod. & Ref.	1,997	....	....
Pure	7,438	....	....
Shell	7,965	133	1,302
Stanolind	22,183	6,221	3,833
Texas	7,674	4,964	1,941
Tidal	9,414	3,821	....
White Oak	1,207	....	....
Total	131,134	30,322	15,456
Tank cars	3,976	600	
Grand total	135,110	30,922	

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending February 16 were 666,316 bbls. from the leases. The pipe line shipments from storage were 197,302. The shipments by companies were as follows:

Company—	Bbls.
Anderson-Prichard	29
Century P. L.	254
Empire	21,816
I.T.I.O.	8,204
Magnolia	4,326
Oklahoma	11,803
Prairie	802
Shell	1,288
Sinclair	8,433
Stanolind	23,007
Slick	7,508
Tidal	3,862
Operators P. L.	3,856
Total	95,188

Oil purchased from storage was as follows:

Purchaser—	Seller	Bbls.
Oklahoma	I.T.I.O.	2,386
Shell	I.T.I.O.	2,202
Magnolia	Slick	267
Stanolind	Slick	11,367
Empire	Operators	1,654
Tidal	Operators	453
Sinclair-Texas	Sinclair	9,084
Total		28,186

Oklahoma City Production

The following wells were on production during the seven days ending February 16, in the Oklahoma City Field, under proration orders. All other wells were shut in and will be produced according to the curtailment plan.

	S-T-R	Wells	Prod.
Anderson-Prichard:			
Clark	3-11-3	1	744
Gibbons	1-11-3	4	306
Hathaway	10-11-3	1	891
Moore	2-11-3	1	92
Pest House	2-11-3	2	70
Roosevelt Place	2-11-3	5	776
Brown et al	14-11-3	1	127
Blackstock et al:			
Schilling	10-11-3	1	19
Blackwell:			
Clemer	10-11-3	1	86
British-American:			
Eckroat	10-11-3	1	347
California:			
Stout	2-11-3	1	29
Coline:			
Clour	23-11-3	16	1,706
Olds	24-11-3	10	1,314
Warren	18-11-2	8	1,318
Continental:			
Sudick	6-10-2	4	286
Cromwell-Franklin:			
T. Park	13-11-2	32	2,578
Denver:			
Alexander	2-11-3	1	1,186
Harvey	15-11-3	1	123
Whitten	14-11-3	1	204
I. T. I. O.:			
Barker, Drake	14-11-3	1	72
Bodine, A.	24-11-3	6	72
Brokaw, C.	13-11-3	4	289
Butterfield	11-11-3	1	1
Canfield, L.	19-11-2	2	21
Canfield, Butt	19-11-2	3	2
Carrico	14-11-3	5	778
Coppinger	11-11-3	8	700
Corff	11-11-3	5	193
Drake	14-11-3	2	49
Eacock	11-11-3	2	99
Emmerson, N.	30-11-2	11	131
Farley, L.	19-11-2	4	980
Farley, Fuzzell	19-11-2	2	277
Ferndale, Comm.	11-11-3	5	797
Foster	24-11-3	1	1
Funk	11-11-3	1	167
Fuzzell, M.	19-11-2	3	209
George	7-11-2	1	21
Habegger	14-11-3	2	156
Hammer	11-11-3	2	114
Hiddleston, S.	19-11-2	1	79
Holmes-Gray	14-11-3	1	52
Huffman	14-11-3	2	112
Ivanhoe	15-11-3	2	33
Johnson	25-11-3	9	328
Jones, H. W.	1-11-3	4	80
Jones	31-11-2	14	953
Jones, Comm.	1-11-3	4	478
Knox, May	14-11-3	4	551
Lawrence Place	15-11-3	3	1,424
Lawton	11-11-3	2	99
Lemmon	11-11-3	5	1,010
Lindsey	15-11-3	1	142
Magnolia Heights	14-11-3	1	63
Mid-Texas	23-11-3	1	97
M. K. & T.	33-12-3	4	952
Mt. Vernon Heights	15-11-3	1	51
Oklahoma S. Land	36-11-3	8	942
Pasadena Heights	14-11-3	5	40
Peterson, Sad	25-11-3	8	1,695
Phelans	16-11-3	2	76
Precure, A.	11-11-3	1	1
Precure, E.	11-11-3	2	444
Rensimer	14-11-3	1	83
Reynolds	6-10-2	1	10
Salasman	32-11-2	5	87
Spannagle	15-11-3	1	603
Speegle et al	24-11-3	3	69
Spillman	14-11-3	3	384
Stackey	11-11-3	2	261
Sudik	31-11-2	10	1,818
Theimer, E.	12-11-3	8	174
Trosper	13-11-3	11	757
Trosper, Clar.	14-11-3	4	750
Trosper, C. E.	11-11-3	1	145
Trosper, H. G.	14-11-3	7	399
Trosper, L.	12-11-3	2	153
Trosper, P.	18-11-2	1	71
Trosper, Hughes	11-11-3	1	134
Unsell, M.	23-11-3	6	252
Unsell-Krager	23-11-3	3	518
Viewpoint	10-11-3	3	1,886
Waters	23-11-3	6	329
Warner, Farley	23-11-3	3	138
Wheeland	10-11-3	1	316
Wheeler	13-11-3	3	93
Williamson, Can	24-11-3	2	373
I. T. I. O. et al:			
Boulevard, Add	14-11-3	1	35
Julian:			
Walker	10-11-3	1	32
Mabee:			
Rusty	10-11-3	1	149
Mabee-Tidal:			
Reynolds	10-11-3	1	2,123
Mid-Kansas:			
Fortson	24-11-3	5	5
Mollman	23-11-3	4	282
Tros-Browning	18-11-2	1	41
Trosper, D. B.	19-12-1	1	158
Minnehoma:			
Pugh	2-11-3	1	801
Phillips:			
Ball	3-11-3	1	82
Carey	2-11-3	1	149
Ciger	3-11-3	1	720
Day	2-11-3	1	1,607
Herecheck	10-11-3	1	1,197
King	10-11-3	1	1,190
Lybrand	2-11-3	1	920
Rallen	2-11-3	1	464
Roden	3-11-3	1	2,079
Velt	2-11-3	1	539
Plains:			
Saddler	12-11-3	1	426
Prairie-Slick:			
Hiddleston	19-11-2	7	129
Sigman	32-11-2	7	443
Scott:			
Ashley	14-11-3	1	97
Shaffer, J. C.:			
Childs	14-11-3	1	246

(Continued on Next Page)

	S-T-R	Wells	Prod.
Shaffer, et al:			
Vinita Park	2-11-3	2	801
Shell:			
Potty	30-11-2	7	15
Sinclair:			
School Land No. 54	36-11-3	16	1,148
School Land No. 67	36-11-3	5	1,079
Stamper	30-11-2	6	24
Vencl	31-11-2	16	5,090
Sinclair Amerada:			
School Land No. 69	36-11-3	3	2,474
Skelly:			
Dunn	1-11-3	1	168
Fields	10-11-3	1	351
Hoops	31-11-2	8	227
Skelly et al:			
Tanner	10-11-3	2	196
Ainsworth	10-11-3	4	280
Slick, T. B.:			
Bailey	1-11-3	1	111
Campbell	3-11-3	3	4,823
Central	3-11-3	1	22
Classen	2-11-3	4	5,059
Classen-Edwards	3-11-3	1	964
Dean	10-11-3	1	704
Foote	2-11-3	3	784
Frost, C. G.	10-11-3	1	128
Frost Heights	10-11-3	4	77
Gleason	1-11-3	1	322
Glidden	13-11-3	2	37
Lard	2-11-3	1	1,552
Page	14-11-3	2	124
Wespaco	34-12-3	1	429
Wilson	2-11-3	1	3,008
Slick, et al:			
Alexander	2-11-3	2	534
Atkinson	1-11-3	2	725
Baker	1-11-3	5	1,171
Clegg	2-11-3	2	252
Crawford	1-11-3	1	247
Danreuther	2-11-3	3	489
Dunivan	1-11-3	1	413
Houghton	1-11-3	1	544
Miller	2-11-3	1	39
Milner	1-11-3	2	463
Townsend	1-11-3	2	219
Hoops	31-11-2	8	994
Sun Ray:			
Donaven	34-12-3	1	226
Harris	2-11-3	1	226
Olafson	2-11-3	1	65
Twyford-Smith	10-11-3	1	1,473
Wirt Franklin:			
Lowery	12-11-3	10	1,380
Page	35-12-3	5	244
Page, Tucker	35-12-3	1	198
Shehan	2-11-3	2	37
Theimer	2-11-3	13	276
Wright-Smith:			
Smith	2-11-3	2	607
Total		718	91,480
Last week		713	103,640

New wells, 5. Decrease, 12,160 bbls. Average per well for pool, 127 bbls.

Carter County

Magnolia Petroleum Co.'s No. 9 E. Gill, SW cor. SE NE, Section 23-1s-3w, Tatums Pool, swabbed 75 bbls. from sands 2,262-2,470 feet. Carter Oil Co.'s No. 3 Joe Franklin, NW cor. NE NE, Section 24-1s-3w, has been completed for 541 bbls. in broken sand 1,940-2,090 feet. Trevelyn Oil Co.'s No. 4 W. Mitchell, SW cor. SE, Section 24-1s-3w, made 751 bbls. from sand 2,318-2,425 feet. Frank Gouin and others' No. 1 Burton, SE cor. SW NE, Section 31-1s-2w, is pumping 52 bbls. from sands 1,834-1,962 feet. F. W. Merrick and others' No. 1 McKee, SE cor. SW SW, Section 20-4s-2w, has been abandoned at 2,868 feet.

Creek County

E. L. Robinson moved a machine in for No. 2 Bucker, NW cor. SW NW, Section 21-19-9. C. L. Freeland's No. 1 Strip, NW cor. SE NE, Section 31-15-7, an old well drilling deeper, is cleaning out at 3,280 feet. C. G. Tibbens' No. 1 Wilson, NW cor. NE SW, Section 18-14-9, has drilled to 1,150 feet and shut down. Phillips Petroleum Co. and Gled Oil Co.'s No. 6 Carter, NE cor. SW SE, Section 20-19-9, has been completed for 160 bbls. in sand 2,150-90 feet, total depth 2,195 feet. Curtis Oil Co.'s No. 1 Oak, NW cor. SE, Section 26-19-9, is dry and abandoned at 2,826 feet. Union Oil & Mining Co.'s No. 1 Evans, SE cor. NW, Section 30-19-9, has been completed for 2,000,000 feet of gas in sand 2,424-39 feet. Quakenbush and others' No. 1 Graves, C SE SW, Section 23-18-7, made 1,300,000 feet of gas from sand 2,990-3,014 feet. O. M. Irelan and others' No. 1-A Bruner, CEL NW NW, Section 27-18-11, has been completed for 15 bbls. in sand 2,282-87 feet. C. R. Fortner's No. 1-A Kell, NE cor. SW SE, Section 11-18-12, is dry and abandoned at 1,625 feet. Gled Oil Co.'s No. 1 Micco, NW cor. NE, Section 30-17-8, has been abandoned at 2,890 feet. J. E. Wallace's No. 1-A Baker, SE cor. NE NW, Section 14-17-10, made a 4-bbl. well in sand 2,470-75 feet. Devonian Oil Co.'s No. 4 Bigpond, SE cor. NW NE, Section 36-15-7, an old well deepened, has been completed for 135 bbls. in sand 3,785-3,810 feet.

LeFlore County

D. S. Howard and others' No. 1 Holmes, SE cor. SW NW, Section 16-3-22, has been abandoned at 1,300 feet.

Lincoln County

Magnolia Petroleum Co.'s No. 1 Tillford, SW cor. SE, Section 7-14-4, is drilling at 375 feet. T. B. Slick estate's No. 1 Altoff, NE cor. NW, Section 18-14-4, Chandler Pool, made 1,896 bbls. from sand 4,992-93 feet.

Marshall County

Magnolia Petroleum Co. moved a machine in for No. 3 Coatsworth, NW cor. SE SE SE, Section 30-5s-6, Madill Pool. F. W. Merrick's No. 24 Null, NE cor. SE SE NW, Section 24-5s-5, has been completed for 10 bbls. in sands 712-21 feet, total depth 728 feet.

Muskogee County

Western D. & E. Co.'s No. 4 L. Fields, NE cor. SW, Section 9-15-18, is drilling at 410 feet. Francis Oil Corp.'s No. 1 Lewis, NW cor. NE SE, Section 14-15-15, is a dry hole at 1,471 feet.

Okfuskee County

McMan & Seckoll moved the rig in for No. 1 S. Johnson, NW cor. SW SW, Section 28-12-10. Atlantic Oil Producing Co.'s No. 4 Fisher, SW cor. NW SE, Section 36-12-10, has been deepened to 3,836 feet and abandoned.

Okmulgee County

O. K. Petroleum Co.'s No. 4 McDonald, CWL NW NW, Section 23-16-14, has been abandoned at 2,385 feet. Babcock Brothers' No. 2 J. Harris, CSL NW NW, Section 1-14-14, made 20 bbls. in sand 1,151-61 feet, total depth 1,164 feet.

Oklahoma County

Oils, Inc.'s No. 1 Classen, SE cor. NW NW NW, Section 2-11-3w, Block 4, Lots 1 and 2, Reno Avenue Addition, Oklahoma City Pool, is a cellar. Champlin Oil & Refining Co. has the cellar dug for No. 1 Eckroat, Block 11, Lot 7, Eckroat Addition, SW cor. NW SE NW, Section 10-11-3w. Sunray Oil Co.'s No. 1 Donaven, CEL SW SW SE, Section 34-12-3w, has been completed for 2,575 bbls. in 12 hours from Wilcox sand 6,328 feet, total depth 6,486 feet. Denver Producing & Refining Co. and Plains Petroleum Co.'s No. 1 Alexander, SE cor. NW NW, Section 2-11-3w, topped Wilcox sand at 6,195 feet, drilled to 6,405 feet and made 14,304 bbls. in 6½ hours. Anderson & Prichard's No. 1 Clark Community, CNL SE NW SE, Section 3-11-3w, has been completed for 5,108 bbls. in four hours from Wilcox sand 6,284-6,370 feet, total depth 6,380 feet. Indian Territory Illuminating Oil Co.'s No. 4 Viewpoint, SW cor. SE, Section 10-11-3w, made 7,500 bbls. in four hours, producing from Wilcox sand 6,380-6,482 feet.

Payne County

Magnolia Petroleum Co.'s No. 2 Groves, SE cor. NW, Section 27-19-4, has been completed for 85 bbls. in sand 3,807-20 feet. Twin State Oil Co.'s No. 1 Massie, SE cor. NE SE, Section 17-19-5, made 30 bbls. from sand 2,887-2,912 feet after plugging back from 3,919 feet. Deep Rock Oil Corp.'s No. 5 Echo Hawk, SW cor. NW NE, Section 9-18-5, made 5,500,000 feet of gas from 2,628-51 feet. Bankston and others' No. 1 Lorett, NE cor. NW, Section 2-18-6, has been completed for 5 bbls. in sand 3,180-3,212 feet.

Pottawatomie County

Burns and others' No. 1 Earlsboro Townsite, Block 26, Lot 8, SW cor. SE NW, Section 8-9-5, is dry and abandoned at 3,810 feet. Commerce Development Co.'s No. 1 Earlsboro Townsite, Block 18, Lot 10, CNL SE SW NW, Section 8-9-5, has been abandoned at 4,363 feet.

Seminole County

Droppleman and others' No. 1-A A. Deavers, SE cor. NW SW, Section 29-6-6, Konawa Pool, is a rig under construction. Magnolia Petroleum Co. moved the rig in for No. 3 Wood, SW cor. NE SW, Section 29-6-6. Location has been made for No. 1 Powell, NW cor. SW SE, Section 15-6-7. Atlantic Oil Producing Co. and others' No. 1 Fixico, NW cor. SE, Section 15-11-8, is dry and abandoned at 3,529 feet in Cromwell sand. Magnolia Petroleum Co.'s No. 1 E. Coker, NW cor. SW NE, Section 35-9-5, has been abandoned at 4,720 feet in Wilcox sand. W. B. Pine's No. 1 J. Tiger, SE cor. NW SW, Section 3-8-5, Carr City Pool, has been completed for 55 bbls. at 4,196 feet after plugging back from 4,234 feet in Wilcox sand. Magnolia Petroleum Co.'s No. 1 Spaulding, SE cor. NW NE, Section 6-7-7, Little River Pool, is dry and abandoned at 3,341 feet in Cromwell sand. Droppleman and others' No. 1 P. Charty, NE cor. SW SW, Section 29-6-6, has been completed for 75,000,000 feet of gas in sand 2,543-2,607 feet.

Tulsa County

Baxter and others' No. 1-A Ellinghausen, SW cor. NE, Section 12-16-13, is drilling at 1,900 feet. Tulsa Drilling Co.'s No. 1 McIntosh, NE cor. SE SW, Section 17-19-14, has been completed for 24 bbls. in sand 1,268-81 feet. H. C. Deems and others' No. 2 Grayson, SW cor. NE NE, Section 18-19-14, made 50 bbls. in sand 1,322-36 feet. Owens and others' No. 2 Warner, CWL SE SW, Section 33-18-14, has been completed for 3 bbls. in sand 1,502-24 feet. Wilrough Oil Co.'s No. 1 Right of Way, NW cor. SE NW, Section 32-17-12, made 97 bbls. in sand 2,393-2,401 feet.

MICHIGAN FIELDS

(Continued from Page 48)

son's No. 1 George T. Rose, SE NE NE, Section 25-12n-18w, White River Township, Muskegon County, 1 mile west of the village of Montague and within a short distance of four other wells drilled during the past two years by the White River Oil Co. Edward DuVall, independent operator, started a wildcat on a lease in the NE NE, Section 1-14n-18w, Benona Township, Oceana County, about 15 miles north of the Nelson-Rose well.

The Mellon-Pollock Oil Co.'s No. 1 Charles Durnin well, NW SW NE, Section 22-16n-4w, Vernon Township, Isabella County, which increased from 30 to 100 bbls. with slight deepening. The Dundee was topped at 3,758 feet and the well was good for 100 bbls. at about 3,770 feet although not yet completed.

New Locations

Permit was issued for Charles Strange's No. 1, on Michigan Sugar Co., NW NW NE, Section 22-16n-4w, Vernon Township, Isabella County and drilling was started on this new well near the Durnin well about 3½ miles southwest of the village of Clare. A permit was also issued for the Leonard Petroleum Co.'s No. 9 Virgil McClintic, NE NW NE, Section 11-14n-3w, Chippewa Township, Isabella County, in the Mount Pleasant Field. Drilling operations are scheduled to start on five or six locations in the Isabella-Midland area, within the next two weeks, it is reported.

There was some excitement early in the week over an oil strike in C. R. Smith, trustee's No. 1 J. Jorgenson, SE NW, Section 21-22n-9w, Haring Township, Wexford County, north of the city of Cadillac. Oil was struck in the upper Traverse at 3,248 feet but it was drowned out later by salt water struck within less than a foot more drilling. It filled up to about 1,200 feet before water came in. The well will be plugged back or carried forward to test the Dundee, according to J. S. Braden, in charge of operations. It is the second attempt to find oil in the vicinity of Cadillac.

A new wildcat is planned for Section 35, Nottawa Township, Isabella County, about half way between the Leaton oil pool and the Broomfield Township gassers, it was announced by officials of the Deerfield-Nottawa Oil & Gas Co., Inc., formed at Mount Pleasant this week. The company has considerable acreage in Nottawa, Deerfield and Isabella Townships, all in Isabella County. Officers are: President, Joseph Eisole; vice president, Gerald J. Cotter; secretary-treasurer, Charles E. Smith; and additional directors, Joseph P. Carey and J. C. Arthurs, a contractor.

The Dow Chemical Co. has a chemical well south of the proposed new oil well that has been producing gas for a period of more than three years, it is said.

KANSAS FIELDS

(Continued from Page 36)

for 216 bbls. in 12 hours from pay 3,385-3,441 feet.

Kiowa County

Phillips Petroleum Co. and the Prairie Oil & Gas Co.'s No. 1 Bean, NE cor. SE, Section 10-30-17w, has been abandoned at 5,386 feet.

McPherson County

Youker and others made location for No. 1 Lagree, C SW NW, Section 7-19-1w. Lario Oil Co. and Shell Petroleum Corp.'s No. 1 Suffield, SE cor., Section 25-19-2w, is a cellar. Vernon Oil & Gas Co. and Shell Petroleum Corp.'s No. 1 Drum, NE cor., Section 35-19-2w, is a rig under construction. Carter Oil Co. is erecting the rig for No. 1 Lagree, SE cor., Section 17-19-1w. Phillips Petroleum Co. and Shell Petroleum Corp. made location for No. 1 Gratton, SW cor. SE, Section 19-19-1w. Lario Oil Co. and Shell Petroleum Corp.'s No. 2 Lagree, SE cor. NW, Section 31-19-1w, is moving in tools. Lassen and Shell Petroleum Corp. and others' No. 1 P. J. Unruh, SW cor. SE, Section 31-19-1w, is moving in. Derby Oil Co. and Empire Oil & Refining Co. are moving in on No. 1 Domsch, NE cor., Section 6-20-1w. Moriarty and others' No. 1 Sadey, C SW SW, Section 2-19-2w, has been completed for 10,000,000 feet of gas in chat 2,926-46 feet. McBride, Inc., and others' No. 1 Lovett, C NW SW, Section 13-19-2w, made 12,839,000 feet of gas in chat 2,907-52 feet. Reserve Oil Co. and Shell Petroleum Corp.'s No. 1 Ritz, SE cor. SW, Section 31-19-1w, has been completed for 1,264 bbls. in Viola lime 3,400-08 feet. Helmerick and Pryor and others' No. 1 Boesker, NW cor. NE, Section 18-20-1w, is dry and abandoned at 3,485 feet.

Morton County

Sidwell & Kuhns' No. 1 Ferguson, C SE, Sectioon 9-34-39w, is drilling at 1,035 feet.

Rice County

Muth Brothers Drilling Co. and others' No. 1 Beyers, NE cor. NW, Section 21-19-9w, made 134 bbls. in 8½ hours from sand 3,213-44 feet.

Russell County

The Prairie Oil & Gas Co.'s No. 1 Hefferman, SW cor. NE, Section 26-15-13w, has been completed for 600 bbls. in 21 hours from sand 3,299-3,303 feet.

Saline County

Stanolind Oil & Gas Co. and others staked location for No. 1 Martin, NE cor. SE SE, Section 3-16-3w.

Sedgwick County

Vickers & Hinkle's No. 3 Keys, SW cor. NW NE, Section 30-27-2, is rigging up to deepen from 2,987 feet. Magnolia Petroleum Co.'s No. 1 Helen Vickers, NW cor., Section 20-27-2, has been completed for 100 bbls. in chat 2,909-38 feet.

Stevens County

Texas Interstate Pipe Line Co. and McKnab's No. 1 H. Rinehart, SE cor. NW NE, Section 23-32-39w, has been completed for 5,977,000 feet of gas in sand 2,349-2,498 feet.

Sumner County

Fisher and others moved a machine in for No. 1 Warner, C NW SE, Section 23-34-2.

DRILLING IN ANGOLA

In a paper on petroleum development in Africa read by W. B. Heroy of New York before the A.I.M.E. annual meeting, he says:

The coastal plain of Angola has for many years been known to contain numerous oil seepages. During the last 15 years Companhia de Petroleo de Angola, now controlled by Sinclair Consolidated Oil Corp., has been engaged in exploration and development work on a large concession in the colony. A number of prospecting wells have been drilled and at the present time the company is engaged in drilling a deep test at a point about 60 miles southeast of Loanda. This well had reached a depth of 3,890 feet at the end of 1930 without encountering commercial production.

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For sale—84 Model WKS 4-cylinder, 6¾"x8", 1,000 r.p.m., rated 120 h.p., industrial type, equipped with twin disc clutch and power take-off, late series, like new guaranteed; 34 of these motors are equipped for operating on artificial or natural gas. Price $950. Mertes Machinery Co., Milwaukee, Wis.

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60—Model "WS" series four cylinder 80, 100 and 120 H. P., 950 R. P. M., Industrial type. Like New Price $950.00 each. Cost new $2700.00.

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12—Model P56 Continental Red Seal six cylinder, 60 H. P., 1600 R. P. M., Industrial type. Price $350.00 each. Cost new $1200.00.
MERTES MACHINERY COMPANY
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100 OIL and gas engines for sale. Superior, Reid, Franklin, Foos, Black Bear and Primm 15 to 80 H.P. in fine order; new models, low prices. Edward A. Schambs, Jr., Box 868, Wichita Falls, Tex. Telephone 6356.

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1—Sullivan Angle Compound Air Compressor, Class W. J. 3—Size 10x4½x8. Maximum working pressure 500 lbs. Displacement 290 cu. ft. per minute. This machine recently purchased new and used not more than 60 days. Guaranteed as good as new. A bargin.
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WANTED — Swan or Wilson underreamer to underream 20-inch 90-pound casing. Sewell Well Co., 1627 Locust St., St. Louis, Mo.

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EXTREME LOW DRILLING COSTS and gusher (up to 5,000 bbls.) production make Williamson County, Texas, serpentine plugs the best venture. $4,000 to $8,000. Covers entire cost of blocking and the drilling of the well. Inquiry solicited.
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OIL located before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses, 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

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JOBERT OIL AND DRILLING COMPANY specializes in drilling propositions and producing and non-producing royalties. 319 Tradesmen's Bank Building, Oklahoma City, Okla.

BLOCK OF GOOD ACREAGE for oil test in Robertson County, Texas. Address Box 793, Hearne, Tex.

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80 RECENT MAJOR CO. CORE HOLES 200 to 1200 ft.; also my 2 cable tool holes into deep midway, knock previous geological concepts of structure of great Hatchetigbee area into cocked hat. Changing Hopkin's crest line (sometimes fully 2 miles); proving every deep well to date off-structure (though several showed encouraging oil); making valuable much acreage previously ignored. 3 good blocks and several protection acreages negotiable. Ohio Oil Co. right now making elaborate torsion balance test of territory. Also 10,000 acre block north of Hatchetigbee; vicinity magnetometer high (Spraragen), showing on map as big nose but probably oval dome with reverse and good closure by visible fault; only 25 miles from Gulf Refining Co.'s deep tests (after 23 structure-test core holes just completed) soon to start in adjoining Miss. Co. Come or send geologists authorized to act; can certainly interest. Have had 30 years experience, having done important official work right here 25 years ago for State Survey for the great Dr. E. A. Smith. S. A. Hobson, Geologist, Jackson, Ala.

TEXAS: Young County Leases offset well now drilling. $20.00 per acre. Production close. High gravity oil. Long life wells. 1110 Bass Bldg., Enid, Okla.

FOR SALE—My patent, and contract now in effect with manufacturing company, covering WELDLESS ELEVATOR LINKS. Royalty runs until 1947. Write Box E-411, The Oil and Gas Journal, Tulsa, Okla.

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List your surplus with us.
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DEEDED MINERAL interest spread covers 6 tracts one under 5,000 barrel well in Rusk County new field. Write for map. ¼ mineral rights 142 acres Bee County 1,200 feet from 450 barrel well $250.00 basis. 7,905.5 acres new 10 year paid up lease ¼ royalty same term Edwards County, Texas, in active line of play $1.25 acre. Stieren & Koenig, Alamo National Bldg., San Antonio, Texas.

½ Interest in finished well at ¼ cost to date. Shut down with good oil showing. Anderson, Linz Bldg., Dallas, Texas.

FOR LEASE—Four tank cars, 10,000 gallons, 50-ton trucks. Have coils. Delivery Chicago. Victor Car Line, 111 West Jackson Blvd., Chicago, Ill.

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OIL DEVELOPMENT maps, any county in Oklahoma, 75 cents each; lease block and detail maps. Write for map list. Lindsay Map Co., Franklin Bldg., Oklahoma City, Okla.

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GOOD BARGAINS are to be found on the Classified Wants pages each week. Become a regular reader of this section each issue. You will find propositions that may prove interesting to you.

CRUDE WANTED: In shipping distance of Kansas City. Give full particulars. Box 134, Kansas City, Kansas.

POSITIONS WANTED

YOUNG man, married, no children, with 10 years' experience as electrical metering engineer and field engineer and superintendent of telephone, electrical transmission, distribution and substation construction desires connection either domestic or foreign. Will prove valuable asset to any oil company or utility. References furnished. Write Box E-404, The Oil and Gas Journal, Tulsa, Okla.

REFINER with perfected process; can construct, available at once. Write Box E-402, The Oil and Gas Journal, Tulsa, Okla.

PETROLEUM CHEMIST, M. A. & B. S. in Chemical Engineering, with 11 years experience in refining as chief chemist and as assistant superintendent and advisor capacity to sales department, wishes to secure responsible position with reliable company. Excellent references. Write Box E-408, The Oil and Gas Journal, Tulsa, Okla.

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FIFTEEN years' experience refinery construction, rigging, fitting, general construction. Erect anything a railroad will haul. Nothing too heavy or too high. References from major companies. Consider yard foreman or dismantling. Write Box E-419, The Oil and Gas Journal, Tulsa, Okla.

ENGINEERING graduate experienced in production and natural gasoline work. Formerly statistician for major company, wants position in related work. Write Box E-415, The Oil and Gas Journal, Tulsa, Okla.

YOUNG married man, 10 years' experience oil development and production, engineer's education. Desires position or job. Write Box E-414, The Oil and Gas Journal, Tulsa, Okla.

TECHNICAL SALES EXECUTIVE or MARKET ANALYST. Can build business, effect merchandising economies, handle difficult sales and engineering problems; 10 years' experience as salesman and general sales manager, first rank firm. Engineer. Age 39. Address Box E-418, The Oil and Gas Journal, Tulsa, Okla.

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TELEGRAPHER wishes connection on oil or gas line. Will go any place; 24 years of age. Good health and habits. Write Ralph Pendleton, 2567 Marcy St., Omaha, Neb.

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WANTED—Chemist or practical experienced man sodium plumbate lead recovery on sulphur crudes. Oil Refining Co., 227 W. Main St., Louisville, Ky.

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WANTED FOR AUSTRALIA
First quality gasoline, 600 tons monthly with large increases, supplied in drums, cases; approximate specification 61-63 390 E.P. gravity, .725 sulphur freee, antiknock. Also 200 tons lighting and power kerosene monthly, drums, and eight Imperial gallon cases; specifications lighting and power kerosene prime white, smokeless, 41-43; power kerosene 130 test sulphur free, and engine distillate 42-44 470 E.P.; lowest quotations f.o.b. America, c.i.f. Sydney; payment cash against shipping documents; contract 10 years, exclusive rights. Reply by cable. J. Kelso 252 George St., Sydney.

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FOR SALE—640 acres commercial oil leases, Chaves County, New Mexico, 50 cents. L. R. Kershaw, Muskogee, Okla.

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LEASES—PRODUCTION

EAST TEXAS offerings, Rusk, Gregg, Cass, Marion, Harrison, Upshur leases and royalties. Wire or write your wants. List and maps. Investors, brokers, U.S. and Canada. James R. Haynes, Grantville, Kans.

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CAPITAL—An experienced, dependable broker will aid in financing projects of merit. Amster Leonard, East Orange, N. J.

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RESULTS

from advertisements carried in the Classified Wants Section are very satisfactory. Letters received from advertisers who use this section prove that this form of advertising pays.

The cost for a ten-line advertisement (one inch) is $3.50 for the first insertion and $2.50 for each additional insertion.

The Oil and Gas Journal
TULSA, OKLA.

Eastern Market Condition More Stable

Number of Price Revisions Reported. Crude Position Causing Some Concern but Sentiment Favorable

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Feb. 23.—A general reduction of 1 cent per gallon in tank wagon gasoline prices in New York and New England territory, restoring the normal differential of 2 cents per gallon between tank wagon and service station quotations, featured the eastern market last week. The change, which was initiated by Socony and followed by the other marketers, indicates that the industry in this section has succeeded in restoring more stable conditions in retail markets.

Other developments of importance in the market this week included a number of price revisions at East Coast refinery terminals on tank car gasoline, bringing the general market up in line with the New York posted price, which was advanced during the preceding week.

There were no developments of outstanding importance in the minor refined products markets, although the statistical position of the general market continued to show signs of improvement.

While the position of the crude oil division of the industry is causing some concern to eastern oil interests, general sentiment concerning the market outlook in this territory continues favorable, and further improvement is looked for as the season progresses. Eastern refiners are adhering to their program of curtailment in plant operation and are avoiding the accumulation of additional burdensome surplus stocks.

Refinery Gasoline

The general market is now well established at a range of 7½ to 8 cents per gallon for U. S. Motor gasoline in tank car lots at refinery terminals in this area. Atlantic Refining Co. has advanced quotations at all points on the Atlantic Seaboard, its previous increase having been effective only at Philadelphia and New York. Cities Service Refining Co. advanced its tank car prices one-half cent per gallon at all points in New England where the company sells in the bulk market. Current prices at principal terminal points in East Coast territory are as follows: New York, 7½ to 8 cents, Shell and Texas quoting the outside price and other sellers holding at 7½ cents; Portland, Me., 7½ to 8½, Cities Service and Gulf quoting 7½ cents, Atlantic Refining, Colonial Beacon, Tide Water, Standard of New York, and Pan American 8 cents, and other sellers 8½ cents; Boston, 7¾ to 8¼ cents, Shell Eastern quoting the top figure and other sellers posting 7¾ cents; Providence, 7¾ to 8¼ cents, all sellers but Texaco and Shell Eastern quoting the inside price; Philadelphia, 7½ to 8 cents, Texaco and Shell Eastern quoting the top figure; Baltimore, 7½ to 8 cents, Continental, Richfield, and Standard of New Jersey quoting the inside figure. Tide Water 7¾ cents, and other sellers 8 cents; Norfolk, 7½ to 8 cents, Texaco quoting 8 cents and the other sellers 7½ cents; and Jacksonville 7 to 7½ cents, Gulf and Pure Oil being the sellers at the inside price.

There was a good demand for gasoline in the tank car market throughout the week, with jobbers buying freely and keeping storage filled in most instances. The local market is freer of "outside" competition than has been the case for a long time back, neither California nor Gulf gasolines offering in any quantity in the jobbing market. While the unsettled gasoline market in the Mid-Continent territory is causing some concern among eastern interests, it is not believed that any heavy movement of this motor fuel into Atlantic Seaboard territory can be looked for.

There was a further increase in gasoline holdings at East Coast refineries during the week ended February 14, holdings totaling 7,370,000 bbls. as compared with 7,018,000 bbls. February 14.

Tank Wagon Gasoline

Restoration of a 2-cent differential between tank wagon and service station prices was made, effective as of February 20, when Standard Oil Co. of New York reduced its tank wagon quotation 1 cent per gallon throughout New York and New England territory, this revision being followed by the other major marketers in this territory.

The price cut was effective only on posted prices for tank wagon deliveries, service station prices remaining unchanged. The cut does not signalize any weakness in the actual market, but is rather another step in the campaign of marketers for the restoration of stable conditions in retail markets.

With the market balance once again normal, the market is now in position for an upward move, in line with recent developments in the refinery situation, and it is expected that a general advance on tank wagon and service prices will be made with the next upward move in refinery quotations.

There has been a well-maintained demand for gasoline, both ordinary and premium qualities, in the tank wagon market during the week.

Kerosene

Quiet conditions have prevailed in this division of the market during the past week. The posted price for 41-43 water white remains unchanged at 6½ cents per gallon with business generally going through at one-quarter cent under this figure in the tank car market.

Retail demand for kerosene has held up well during the period, with posted prices for tank wagon deliveries unchanged. New England sales are reported running in excess of comparable totals for last season, and gallonage is also very satisfactory in New York territory.

Fuel Oil

East Coast refiners have made further progress in their campiagn to reduce refinery stocks of fuel and gas oils, holdings at refineries in this territory totaling 7,526,000 bbls. February 14, as compared with 7,905,000 bbls. on hand at the close of the previous month and 9,601,000 bbls. on hand at the start of the year.

Spot inquiry for bunker "C" oil showed some improvement during the week, and the market was showing a steadier tone at $1.05 per barrel, bulk, f.o.b. refinery terminals. Contract deliveries were going out at the same figure. Bunkering activities in the local harbor have been made difficult during the week by the accumulation of considerable floating ice in the harbor, making it diffcult for lighters and barges to come alongside for pumping the oil into ships' bunkers.

Industrial consumption of fuel oil is well maintained, and refineries are showing considerable optimism regarding the market outlook. The present price basis of $1.05 a barrel, it is now felt, is sound and can be maintained unless further drastic cuts in crude prices should develop, resulting in a flood of cheap fuel oil from California and the Gulf Coast area.

Gas Oil

Gas oil movement is holding up well and the market is in somewhat better position. Refinery stocks are being reduced and refiners expect that the market will shortly reflect this development in stronger prices. The posted price for 28 plus recycled oil is unchanged at 5¼ cents a gallon, and while this quotation is still being shaded by as much as a full cent per gallon, sellers at the 4¼ cents level are by no means as numerous as was the case a few months ago, and most sellers are disinclined to go below 4½ to 4⅝ cents per gallon at the refinery.

Manufacturing gas companies in this territory are drawing stocks of gas oil in substantial volume, and refiners look for a well maintained demand until well in the spring season. Consumption of gas oil for domestic oil burners is also aiding substantially in cutting down holdings of this oil at eastern refineries.

Shipments of California gas oil eastward have shown some falling off in recent weeks and curtailing the move of this oil eastward will likewise exercise a beneficial effect upon the market in this territory.

Diesel Oil

Marine consumption of Diesel oil has shown some pick-up this month, refiners report, and with gradual recovery looked for in the shipping industry, further gains in demand are looked for in this direction. A number of new Diesel-burning vessels will enter New York runs this year, and continued healthy expansion in sales is anticipated.

The local market holds unchanged at $1.85 per barrel, with both spot and contract deliveries going forward at that level.

Refinery shipments of Diesel oil for domestic industrial consumption are coming in for considerable attention. Domestic demand for this oil is improving steadily, and refiners are devoting more sales attention to this branch of the market.

Lubs

Interest in cylinder oils picked up somewhat during the week, but the market is still in unsettled position. Spot 600 steam refined cylinder oil is a quarter cent higher at 16¾ cents per gallon. Bright stocks are up one-half cent per gallon, but prices are lower on other grades. Spot 650 steam refined is available at 20½ cents a gallon, off a half cent from the previous quotation, with 600 and 630 Pennsylvania flash showing corresponding reductions at 21 and 28 cents per gallon, respectively. Warren E 600 is quoted at 22 cents and Oil City E at 21 cents, 1 cent per gallon lower in each instance. Jobbers are of the opinion that this week's revisions in cylinder oil prices have readjusted the market to current conditions and believe that with gradual recovery in demand the market will show an upward tendency during the next few months.

Pale and red oils were showing a steady tone during the week, with refinery movement running into satisfactory totals. The gradual recovery in industrial operations is making for a corresponding gain in lub oil requirements, and refiners look for further gains in consumption during the late spring months. The textile industry in particular has increased its purchases of lub oils during recent weeks.

Furnace Oil

Domestic heating oil sales are holding up well. The refinery market for this oil, minimum 32 gravity, is unchanged at 4½ cents per gallon in tank car lots at local refinery terminals.

Posted prices for retail deliveries of furnace oils in this territory range 8½ to 10 cents per gallon for 36-40 gravity, 6¾ to 8½ cents for 32-36 gravity oil, 6¾ to 8 cents per gallon for 28-32 gravity, and 3½ to 4¼ cents per gallon for 14-16 gravity oil.

While sales of oil burners are holding up well, manufacturers are coming in for strong competition from automatic coal stokers and gas burners, particularly in the larger cities. Eastern gas companies have established special low rates on gas for domestic heating and are making considerable headway with their sales campaigns. With current sentiment indicating that natural gas for the New York territory may be looked for within the next few years, it is expected that considerable impetus will be given to the use of gas for domestic heating purposes.

Petrolatum

Contract deliveries of petrolatum are well maintained, and the market is in steady movement with prices unchanged.

Export buyers have been in the market for petrolatum in fair quantities during recent weeks, with the bulk of the demand centering on the lower grades.

Refinery stocks of petrolatum are not excessive, and the market appears fairly well established at current levels.

Paraffin Wax

Domestic sales volume has shown a little improvement during the week, and the market is showing a steadier undertone. Quotations are unchanged from last week's levels, but refiners are showing decidedly firmer views on spot sales, and are disinclined to entertain bids at price levels substantially under posted quotations.

Export inquiry for wax has held up well. Export buyers during recent weeks have been buying resale wax at concessions from spot levels, but the market has now been well cleared of this semi-distressed material, and buyers for foreign account are being forced to return to the established sources of supply for additional stocks of wax.

Petroleum Exports

Export movement of refined petroleum products locally again reacted downward during the week ended February 14, shipments falling off on practically all products. This trend was in direct contrast to the general expectations of the trade, who had looked for further improvement in export volume.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Feb. 14	Feb. 7	Jan. 31
Gasoline	215,000	615,000	160,000
Naphtha	160,000	768,000	190,000
Kerosene	185,000	100,000	.....
Fuel oil	535,000	56,000	85,000
Lubricating oil	1,600,000	1,610,000	848,000
Petroleuf, ref..	225,000	1,550,000	780,000
	Pounds		
Petrolatum	.....	115,000	9,000
Paraffin wax	245,000	1,590,000	2,140,000
Refined	.....	630,000	540,000
Scale	150,000	1,195,000	965,000
Lubricating grease	960,000	1,425,000	1,180,000

Bearish sentiment in the crude oil division of the market, with numerous predictions of further sharp cuts in posted prices for crude, has tended to again weaken confidence in the current position of the refined products market, and export operators report that there has been a noticeable falling-off in export inquiry during the week. Foreign buyers who earlier in the year indicated that they would be in the market for supplies during the first quarter are now reported to be deferring action pending further developments in the crude petroleum price structure.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended February 14 totaled 1,300,000 bbls., a daily average of 185,714 bbls., compared with 2,326,000 bbls., a daily average of 332,286 bbls. for the previous week and a daily average of

252,679 bbls. for the four weeks ended February 14. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	113,000
Boston	63,000
New York	700,000
Philadelphia	360,000
Others	64,000
Total	1,300,000
Daily average	185,714
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	1,300,000
Daily average	185,714
Daily average four weeks	252,679

Distribution of total imports is as follows:

Crude	939,000
Gasoline	245,000
Gas oil	20,000
Fuel oil	96,000

Export Market

No cargo fixtures were reported in the Gulf territory this week, the market continuing in dull position. Notwithstanding current slackness, however, sellers are showing strong price views, with quotations well maintained at last week's levels, and sellers in some instances asking an eighth to a quarter cent per gallon over these quotations.

Slackness was likewise reported in the market for Venezuelan and Mexican crudes during the week, and no cargo sales of California gasoline or kerosene were reported in the open market.

Large integrated companies, however, were moving gasoline and kerosene into export channels in substantial volume last week, both from the Gulf and from California, but this business did not reach the open market, inasmuch as the oil involved was consigned to foreign subsidiaries of these companies.

Nothing further has developed in connection with the reported plan of French refining interests to place contracts for American crude oil for later delivery, and it is expected that this business will be withheld until the construction of new French refineries is further advanced.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended February 14 totaled 245,000 bbls., a daily average of 35,000 bbls., compared with 340,000 bbls., a daily average of 48,571 bbls. for the previous week and a daily average of 47,286 bbls. for the four weeks ended February 14. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Boston	40,000
New York	110,000
Philadelphia	55,000
Others	40,000
Total	245,000
Daily average	35,000
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	245,000
Daily average	35,000
Daily average four weeks	47,286

Distribution of total California oil receipts is as follows:

Gasoline	165,000
Fuel oil	80,000

Shipments of refined products from California for Atlantic and Gulf Coast ports for the week (with identity of owner of tanker moving the oil where such owner is an oil company) follow:

To New York—97,000 bbls. of gasoline on the Royal Arrow (Standard Oil Co. of New York).

To Port Arthur, Tex.—76,300 bbls. of Diesel oil on the Nevada.

To Baltimore—116,200 bbls. of gasoline on the Sun (Sun Oil Co.).

Charter Market

With the exception of one clean fixture, all the business in the tanker market this week was done from the Black Sea, say Funch, Edye & Co., Inc., in their weekly market summary. Market rates for clean tonnage are, Black Sea, 7/6; Gulf, 9/-; California, 15/6; to U.K. /Continent. There is little demand, the few orders being confined to the Black Sea district and these shippers continue to find a market for their oils with low transportation costs. Black oil carriers can still be placed Gulf/transatlantic, April/May, around 8/-. No definite employment is offering for time charter. American Coastwise and Intercoastal markets were again inactive, the only inquiry being for a prompt clean boat Gulf to North Hatteras.

Fixtures during the week were as follows:

British Steamer Oil Trader or Sub., 9,012 tons deadweight, clean, part cargo 6,000 tons—10 per cent, Constanza to French Atlantic 7/6 one port, 8/- two ports, March/April.

Norwegian M/S Stigstad, 8,135 tons deadweight, clean, part cargo 6,000 tons—10 per cent, Gulf to one port French Atlantic, 9/6, option one port French Atlantic and one port East Coast U.K. 10/-, or one port French Atlantic and two ports East Coast U.K. 10/6, March.

Norwegian M/S Drafn, 11,500 tons deadweight, clean, Black Sea to U.K./Continent, 7/6, March 1/15.

Dutch M/S Mordrecht, 10,500 tons deadweight, clean, Black Sea to U.K./Continent, 7/6, end March loading.

Norwegian M/S Storsten, 8,000 tons deadweight, clean, Constanza to Alexandria 5/- February (recently).

Italian Steamer Antares, 4,900 tons deadweight, gas oil, part cargo 3,500 tons, Constanza to Mediterranean, 8/6, early February (recently).

Dutch Steamer Amsterdam, 10,450 tons deadweight, clean, 5,000 tons—10 per cent, Constanza to Havre 7/6, combined with 2,500 tons Preston 10/6, March.

GULF COAST FIELDS

(Continued from Page 42)

for between 65 and 70 bbls. daily. This well offsets Humble's No. 3 Minnetex, completed several months ago as the first commercial oil producer at Mykawa and which flowed initially between 300 and 400 bbls. daily. Two additional wells have been completed at Mykawa but both were gas producers although one sprayed some oil.

Refugio Producers

The 6,400-foot horizon at Refugio was further proved up the past week by the addition of two more producers, United Production Corp.'s No. 8 O'Brien and Luling Oil & Gas Co.'s No. 1 City Block 105. Neither is an extension of the producing area. The former with 18 feet of screen set in sand at 6,448-57 feet is flowing 160 bbls. of high gravity oil (gasoline) with pressure of 2,100 pounds on tubing and 2,200 pounds on casing through quarter-inch choke. The other was completed for 960 bbls. of pipe line oil with 10 feet of screen in sand at 6,451-59 feet. It has a pressure of 1,650 pounds through three-eighths-inch and quarter-inch chokes.

In the old part of the field, formerly a gas producing area, but which operators have been redrilling following the showing up of oil with the decline in gas pressure, Houston Oil Co.'s No. 13 W. J. Heard, in the extreme south corner of this lease, was completed as a gas well with 22 feet of 6⅝-inch screen set in sand at 3,670-78 feet. It had a pressure of 875 pounds through a half-inch choke. Since completion the well has been spraying a little oil and may turn to an oil producer.

Particular interest in Refugio at the close of the week was centered on Moody-Seagraves-Karona's No. 1 F. Hayser, on the extreme south of the Refugio district and 2 miles to the southeast of the nearest deep production. This well, which found an oil sand at 6,419-37 feet, was preparing to drill 5⅞-inch plug to test. If a well it will mark an important extension of the 6,400-foot horizon, which so far has been productive only on the east side of the old field.

Edgerly Well

Rex Petroleum Co. got a good well at Edgerly, Calcasieu Parish, in its No. 8 Hunter, the first well there in several months. The well set two joints of 4½-inch screen at 3,705 feet and flowed 300 bbls. daily on a three-eighths-inch choke. Humble Oil & Refining Co.'s No. 9 Mueller, Raccoon Bend, Austin County, flowed 143 bbls. of pipe line oil in the first seven hours from sandy shale at a total depth of 3,510 feet. Sun Oil Co.'s No. 2 Marcus, Clay Creek, is a 15-bbl. well with 20 feet of screen at 1,254 feet. Rio Bravo Oil Co.'s No. 110-A Cotton, in the new shallow sand development at Saratoga, is flowing 50 bbls. daily at 457-500 feet. Other completions, all old well deepened, were Bashara Oil Co.'s No. 2 Bashara, Hull, 125 bbls., 4,248 feet; Sinclair Oil & Gas Co.'s No. 5 Granger, Orange, 60 bbls., 50 per cent water, 3,650 feet; Yount Lee Oil Co.'s No. 113 McFaddin, Spindletop, 250 bbls., 50 per cent water, 4,289 feet.

Lost Lake Abandonment

Pure Oil Co. has abandoned its No. 5 Lost Lake on the extreme west side of the Lost Lake Dome. The farthest west test and a rank wildcat, it was drilled to a total depth of 7,471 feet, where drill stem twisted off, and the hole junked. Production, so far confined to the top of the dome, has been from a horizon above 3,600 feet. No. 5, in addition to its wildcat flank location and its depth (the deepest hole ever drilled at Lost Lake), was extremely interesting from a geological angle. This test drilled through in succession a cap rock into formation, thence into anhydrite, a soft granular anhydrite (resembling sand but strictly anhydrite, the first ever encountered so fas as known), salt, granular anhydrite, and anhydrite and salt. The log follows:

	Feet
Hard coarse cemented limestone	5,136-5,158
Calcite	5,160-5,185
Anhydrite	5,185-5,234
Formation	5,234-5,396
Anhydrite	5,396-5,431
Soft granular anhydrite	5,431-6,280
Salt	6,280-6,591
Granular anhydrite	6,591-7,322
Salt and anhydrite	7,322-7,471

Louisiana Operations

At Port Barre, St. Landry Parish, Louisiana, Gulf Refining Co. abandoned its No. 4-A Hoskins, Section 4-6s-5e, in salt at 3,892 feet. This well, an extensive location, tested salt water in the producing horizon of the field at 3,658-3,696 feet.

The Texas Company has abandoned a deep flank test on the Bay Junop Dome, Terrebonne Parish, Louisiana. This test, No. 2 L.L.&E., was drilled to 7,034 feet in hard sand rock. Bay Junop is one of the seven domes in the coastal marshes of that parish being developed simultaneously by The Texas Company. It is one of two on which so far no production, either oil or gas, has been found.

Other abandonments of the week were Sun Oil Co.'s No. 4 McKinney fee, east flank of Barbers Hill, tested salt water, 5,511 feet; Gulf Production Co.'s No. 61 Davis, Big Creek, total depth 4,173 feet, sidetracked to 3,673 feet, dry; Sun Oil Co.'s No. 19 Bender, west flank Humble, heaving shale, 4,808 feet; Sun Oil Co.'s No. 3 Einman, Clay Creek (Gay Hill), Washington County, water sand, 1,957 feet.

J. P. COFFMAN RETIRES

OIL CITY, Pa., Feb. 21.—J. P. Coffman, general superintendent of the National Transit Pump & Machine Co., has retired under the pension plan after 20 years of service with the company. During his score of years with the National Transit, Mr. Coffman rendered services which won him recognition in the mechanical field and proved of great aid to his company. In recognition of his unbroken record of service he has been retired from active duty under the pension plan.

Mr. Coffman, through his varied civic activities in behalf of Oil City and this section, is widely known and respected.

NEW GERMAN COMPANIES

Reports from Germany say that the Erdoelbohr und Verwertungs B.m.b.H., has been organized in Lerthe, Hanover, for the purpose of carrying on operations in the Hanover fields and in adjacent refineries.

The Kali Syndikat, or potash syndicate, is reported to have purchased a large interest in the German oil company known as the Ehverath, and has bought out the Raky interests. It is thought the Kali Syndikat will throw in the lands and the rights it owns in the vicinity of the salt domes it now operates for potash.

Old Timer Says—

"Play Safe Use Parmaco Plug Packers"

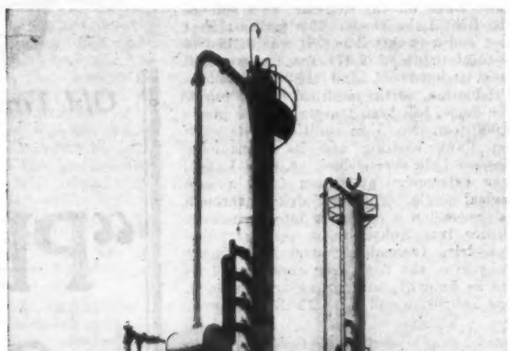
Write for Catalog

PARKERSBURG MACHINE CO.

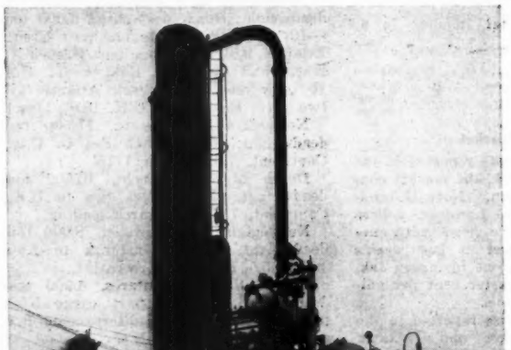
PARKERSBURG, W. VA.

The House of Courteous Service

DESERVED RECOGNITION



STABILIZER AND SPECIAL NAPTHA FRACTIONATORS



GASOLINE STABILIZING PLANTS

AFTER CAREFUL AND THOROUGH INVESTIGATION

Two Companies of International Prestige ANNOUNCE their Association with

PETROLEUM ENGINEERING, INC.

The National Supply Company

offers the Petroleum Industry complete plants for Vapor Recovery, Natural Gasoline Manufacture and Oil Refining, using equipment designed by Petroleum Engineering, Inc., and becomes representative and distributor of Petroleum Engineering, Inc., Equipment.

(In Oil and Gas Journal of Jan. 8th)

Arthur G. McKee & Company

announce that their great Engineering and Contracting facilities have been extended to include Natural Gasoline Plants, Pressure Distillate Stabilizers, Vapor Recovery Systems, etc., through their association with Petroleum Engineering, Inc.

(In Oil and Gas Journal of Jan. 29th)

PETROLEUM ENGINEERING, INC.

PHILTOWER BUILDING
TULSA

W.T. WAGGONER BUILDING
FORT WORTH

REPRESENTED THROUGHOUT THE WORLD BY
THE NATIONAL SUPPLY COMPANIES

Manufacture of Natural Gasoline

Natural Gasoline Imports in Canada Show Large Gains

By Victor Lauriston

CHATHAM, Ontario, Feb. 21.—It is a little difficult and possibly a little early to estimate the effects of the tariff imposed on imported gasoline by the Canadian government and which went into effect on September 15, last. Available statistics would indicate that there has been a falling off in the imports with the exception of natural gasoline for the months of November and December, 1930. Natural gasolines have shown a large increase.

The situation has been complicated by financial conditions as a result of which there was probably less pleasure driving in 1930 than in 1929, as well as less industrial activity.

Allowing for these factors, however, the general indications are that the tariff has had considerable effect in reducing sales of imported refinery gasoline in Canada with consequent benefit to Canadian refiners. Advertised lines with marketing organizations already established in the Dominion have perhaps suffered the least. Canadian refiners who have discussed the subject express themselves as well satisfied with the results of the measure and there has been some activity in the direction of extending existing plants or resuming operations where

(Continued on Page 128)

TO ANNOUNCE PROGRAM FOR MAY MEETING SOON

Announcement of the program of the next annual convention of the Natural Gasoline Association of America will be made soon according to Ray Miller, secretary. Papers of general interest will be presented by Mid-Continent and California manufacturers. These two groups have been drawn closer together in a discussion of mutual problems, as a result of these meetings. The program will be partly devoted to the presentation of discussion of technical subjects.

The convention will be held during May 19, 20 and 21 in Tulsa and the Natural Gasoline Supply Men's Association has already announced it will again provide the entertainment and noon lunches for the three-day period.

U. S. PLANTS PURCHASED BY SIGNAL OIL & GAS

Signal Oil & Gas Co., crude oil producer and substantial manufacturer of natural gasoline in California and the Mid-Continent area, has acquired the controlling interest in the United States Refining Co., which has operated skimming plants at Hynes and Torrance, Calif., taking over this company's plants, tradename and distributing facilities.

S. B. Mosher, an official of the Signal company, has been installed as vice president of the United States company, succeeding W. R. Cowan, who remains with the Exeter Oil Co. interest who sold to Signal. Otherwise the personnel of the United States company remains unchanged. The purchase marks the entry of the Signal company into the refining and marketing field.

OKLAHOMA OUTPUT GAINS

Increasing the allowable production in the Oklahoma City Pool so that the daily production last week was in excess of 100,000 bbls. daily has increased the natural gasoline production of several plants in that area. Although under the new proration plan the supply of casinghead gas is still not uniform, it is an improvement over previous conditions according to manufacturers.

Due to the proration method of producing oil, the Oklahoma City Field has not become as great a factor in natural gasoline output as was expected when the field was discovered. It is believed that the output will show a substantial gain later in the year.

CHARGE GASOLINE BOOTLEGGING

That the sale of drip gasoline upon which no tax has been paid to the State has increased greatly in Oklahoma is charged by H. V. Bird, state gasoline tax auditor. According to the tax auditor, the gasoline is taken from the lines at night and hauled by trucks to "bootleg" service stations where it may be sold at far below the posted market because of the evasion of payment of the State's 4-cent tax on gasoline.

IMPROVING SKELGAS PLANT

Plans have been completed and work is expected to start soon on a rearrangement of Nos. 1 and 2 towers at the Skelgas plant of the Skelly Oil Co. at Lyman, Okla. It is estimated that production of propane at this plant will be increased by 2,000 gallons daily as a result of the change. A saving is also seen in fuel consumption as the new arrangement provides for recirculating the heated charge.

ALL GASOLINE SWEET

The Pure Oil Co. has installed treating plants at all of its natural gasoline plants where the gasoline failed to pass the doctor test. All of the production is sold to the Pure Oil Co. refineries.

TEXAS CONSIDERING TAX ON NATURAL GASOLINES

AUSTIN, Tex., Feb. 23.—A bill has been introduced in the Texas House of Representatives to tax natural gasoline and its products as well as wasted oil. The bill is now before a committee and will be reported back to the House in a few days.

The bill makes several changes in Article 7,071 of the Revised Civil Statutes which article imposes a 2 per cent gross production tax on oil. The tax is now collected upon oil saved. This bill provides for taxation of all oil produced, "whether same is sold, consumed, stored, burned, released in the air or otherwise disposed of."

It extends the term "oil" to include natural gasoline and "the gasoline or other oil content of casinghead gas" and taxes those products on the basis of one-third of their actual value. As the law now stands, the term "oil" is used to mean only "petroleum oil, mineral oil or other oil taken from the earth."

The bill amplifies the language of Section 2 of the present Article 7,071, to provide that records kept by producers shall show to whom oil was sold or delivered, with dates and amounts, "and shall also show the amount of oil consumed, burned, released in the air or otherwise disposed of." The present tax of 2 per cent market value, including bonuses or premiums paid, "or which the oil will reasonably bring," is extended to cover burned, wasted or lost oil.

PLAN TWO TEXAS PLANTS

The East Texas Refining Co., which is building 6,000-bbl. refineries at Henderson and Long View, Tex., has engaged John Moss, construction engineer of Tulsa, Okla., to study the production situation at Henderson with a view of erecting two small natural gasoline plants there which may be operated as combination compression and gas-lift stations.

L. M. GELVIN TO ELDORADO

L. M. Gelvin of the engineering division of the Skelly Oil Co. natural gasoline department has been sent to the company's refinery at Eldorado, Kans., from Tulsa on a special assignment which will require a month to complete.

GOVERNMENT DATA SHOW DECREASE OF 22,500,000 GALLONS IN 1930

1930 Preliminary Summary, Bureau of Mines, Department of Commerce

The production of natural gasoline in 1930 did not show its usual increase in 1930; in fact, the total output for the year dropped off from 2,195,400,000 gallons in 1929 to 2,172,900,000 gallons in 1930. This decline in output was closely related to the drop in crude output, and the Seminole district, which showed a very rapid decline in crude output, was also credited with the most material loss in the production of natural gasoline.

The output of the Kettleman Hills Field amounted to 156,700,000 gallons in 1930, as compared with a comparatively small amount in 1929. This increase more than compensated for the losses in production in the rest of the State and the California total for the year, 814,100,000 gallons, represents a small gain over the 1929 output. Production in Texas, the third-ranking State, increased as the result of gains in output of the Panhandle plants.

The trend in stocks of natural gasoline held at the plants lacked the fluctuation of 1930, and the high point of the year, 39,000,000 gallons on June 30, was considerably below the high point of 1929. Blending of natural gasoline with naphtha at the plants in the making of finished motor fuel showed a very material decline in 1930.

NATURAL GASOLINE IN THE UNITED STATES IN 1930, BY MONTHS, IN MILLIONS OF GALLONS
DEPARTMENT OF COMMERCE, BUREAU OF MINES

NATURAL GASOLINE:	January	February	March	April	May	June	July	August	September	October	November	December	1930	1929
Production by fields:														
Appalachian	10.9	9.2	9.8	8.1	6.7	6.0	5.0	4.9	4.7	6.9	7.5	8.3	88.0	101.6
Kentucky, Illinois, etc.	1.4	1.3	1.3	1.1	1.0	.8	.7	.8	.8	1.0	1.0	1.1	12.3	13.8
Oklahoma	50.0	47.3	53.5	53.8	54.0	52.9	47.8	45.0	44.8	46.6	41.5	41.4	578.6	676.5
Oklahoma City	1.8	1.6	2.2	2.9	3.6	3.8	2.5	2.7	3.8	4.2	3.4	3.6	36.1	(*)
Osage County	6.2	5.9	6.8	6.8	6.1	6.1	6.3	6.4	6.3	6.3	6.0	6.2	75.4	84.5
Seminole, etc.	23.6	21.8	24.2	25.1	24.9	24.9	21.5	18.9	18.0	18.3	16.6	16.1	253.9	344.9
Rest of State	18.4	18.0	20.3	19.0	19.4	18.1	17.5	17.0	16.7	17.8	16.5	15.5	213.2	247.1
Kansas	2.6	2.8	2.8	3.0	2.7	2.7	2.4	2.3	2.3	2.9	2.8	2.7	32.3	33.8
Texas	37.2	36.7	40.2	40.2	42.1	38.6	40.5	42.1	41.7	43.6	43.9	42.9	489.7	422.3
Panhandle	19.0	18.2	20.3	20.6	21.9	18.8	20.5	22.4	21.6	21.7	22.0	22.0	249.0	183.8
North Texas	3.4	3.6	3.9	3.6	3.8	3.5	3.7	3.6	3.4	3.6	3.7	3.8	43.6	48.4
West Central	11.5	11.8	12.4	12.4	12.6	12.7	12.6	12.3	12.1	12.8	12.3	12.1	147.6	151.3
Rest of State	3.3	3.1	3.6	3.6	3.8	3.6	3.7	3.8	4.6	5.5	5.9	5.0	49.5	38.8
Louisiana	7.7	6.9	7.5	6.0	6.0	5.6	5.5	5.4	5.3	5.8	4.7	4.7	70.2	65.4
Arkansas	2.4	2.4	2.7	2.7	2.8	2.8	2.7	2.8	2.6	2.7	2.6	2.6	31.8	32.3
Rocky Mountains	3.2	3.8	4.4	4.5	4.6	4.6	4.6	4.7	4.8	5.1	5.6	6.0	55.9	47.5
California	69.8	68.9	70.0	66.6	69.7	65.3	68.5	68.9	64.3	67.1	68.4	66.6	814.1	804.2
Long Beach	14.8	14.4	14.8	14.3	14.4	13.5	14.4	14.9	14.3	14.8	14.1	14.2	172.9	237.8
Ventura Avenue	5.5	5.7	4.8	4.6	4.9	4.8	5.0	5.0	4.7	5.0	5.0	5.2	60.2	76.6
Seal Beach	3.2	2.9	2.7	2.5	2.3	2.0	2.0	2.0	1.9	1.8	1.6	1.6	26.5	41.3
Huntington Beach	3.5	3.2	2.8	2.7	2.7	2.6	2.7	2.7	2.5	2.5	2.4	2.3	32.6	41.9
Kettleman Hills	8.8	8.3	9.8	12.6	14.6	13.8	14.2	14.9	13.7	13.4	17.2	15.4	156.7	(*)
Santa Fe Springs	21.3	20.8	21.4	16.6	17.2	15.5	16.2	16.1	15.4	15.8	14.9	14.4	205.6	222.3
Rest of State	12.7	13.6	13.7	13.3	13.6	13.1	14.0	13.3	11.8	13.8	13.2	13.5	159.6	194.3
Total United States	185.2	178.4	192.2	186.0	189.9	179.3	177.7	176.9	171.3	181.7	178.0	176.3	2,172.9	2,195.4
Daily average	6.0	6.4	6.2	6.2	6.1	6.0	5.7	5.7	5.7	5.9	5.9	5.7	6.0	6.0
Stocks at end of period	25.7	24.0	28.3	29.8	38.7	39.0	31.1	31.3	22.4	23.5	25.0	24.3	24.3	25.4
Indicated deliveries	184.9	180.1	187.9	184.5	181.0	179.0	185.6	176.7	180.3	180.6	176.5	177.0	2,174.0	2,195.4
Blending at plants:														
Natural gasoline used†	1.3	.9	1.1	1.0	.9	.9	.9	.8	.7	.7	.7	.7	10.6	27.7
Naphtha used†	1.6	.8	.9	.9	1.0	1.1	1.1	.9	1.0	.9	.8	.7	11.7	32.3
Stocks of blends end of period	.6	.5	.5	.8	.5	.5	.5	.5	.5	.5	.6	.5	.5	.7

*Included under "Rest of State." †Exclusive of California.

Brief Items for Petroleum Refiners

Toledo Refinery of Pure Oil Company Begins Operations

In the past week the new 8,000-bbl. refinery of the Pure Oil Co., located at Toledo, Ohio, was placed on a regular schedule of operation. Crude is being

R. D. McClaren

supplied from the Michigan fields by barge over the Great Lakes and within a few days Mid-Continent crude will be delivered to the plant through the new Ajax pipe line. A consignment of Mid-Continent crude has been delivered to the pipe

(Continued on Page 119)

DETONATION AND VAPOR LOCK LEAD AS A.P.I. TOPICS FOR ST. LOUIS

Opening sessions of the mid-year meeting of the American Petroleum Institute's Division of Refining, April 15 and 16, in the Statler Hotel at St. Louis, Mo., will be devoted largely to presentation of papers dealing with the work which has been done on testing fuels for antiknock value and on the vapor lock problem, beginning at 2 o'clock p. m.

R. C. Holmes, president of The Texas Company, is chairman of the division's general committee and the committee on refinery statistics and economics and will have charge of the round table discussion scheduled for the evening of April 15. The round table session will be featured by a report covering estimated gasoline supply and demand for the period April 1 to September 30, 1931. The Federal Oil Conservation Board's committee on petroleum economics is also expected to present a survey covering the same period.

The work on detonation and vapor lock to be discussed is that carried out by the United States Bureau of Standards under the auspices of the co-operative fuel research committee. Definite progress is reported toward agreement upon a standard method of determining gasoline antiknock values.

Dr. H. C. Dickinson, of the Bureau of Standards, Washington, D. C., will present a paper on "Progress Toward a Standard Method for Determining the Antiknock Value of Motor Fuels." Dr. O. C. Bridgeman, also of the Bureau of Standards, will present a paper on "Automobile Fuel Line Temperatures," in connection with the vapor lock problem. K. G. Mackenzie, of The Texas Company, who is chairman of the committee on testing methods and specifications, will present the report of this committee.

Sessions will be resumed Thursday morning at 10 o'clock, and will be of special interest to refinery engineers. Alloy steels for high temperatures, and the subject of condenser corrosion, will be discussed in the morning meeting, while the afternoon sessions will be devoted to consideration of proposed manuals on refinery fire protection and waste disposal.

H. D. Newell, of Babcock & Wilcox Co., New York City, will speak on "Alloy Steel for High Temperature Service," and Walter Samans, Atlantic Refining Co., Philadelphia, will present the report of the committee on corrosion of refinery equipment. A speaker will be selected to discuss "Corrosion in Condensers."

Tentative drafts of the proposed A.P.I. Manual on Fire Protection in Refineries, and the A.P.I. Manual on Disposal of Refinery Wastes, will be reviewed at the round table discussion which begins at 2 o'clock p. m., of April 16. C. W. Smith, of Standard Oil Co. of Indiana, Chicago, will present the report of the committee on accident prevention in refineries of which he is chairman.

The board of directors of the Institute will meet at a dinner on April 16, at the close of the mid-year convention.

TWO CASPER MEN PROMOTED

A. E. Thompson and R. E. Beard have been promoted to the positions of assistant general superintendents of the combined plants of the Standard Oil Co. of Indiana at Casper, Wyo. Mr. Thompson has been with the company since 1903, and was transferred to Casper in 1913, where he became assistant superintendent of Plants Nos. 1 and 2, in 1918. Mr. Beard went to the Casper refinery in 1922, and became foreman of the steam refined treating and acid departments in 1923.

PRAIRIE ENTERS MARKET WITH KANSAS PURCHASES

Acquisition by the Prairie Oil & Gas Co. of 90 per cent of the preferred stock and a majority of the common stock of the Long Oil Co. of Manhattan, Kans., and the tentative purchase also of the Keeton Oil & Gas Co., which has 25 service stations and 10 bulk plants in Kansas, marks the entrance of the Prairie company into the marketing field in an important way.

Through its subsidiary, the Producers & Refiners Corp., which operates refineries at West Tulsa, Okla., and Parco, Wyo., Prairie has conducted marketing and jobbing operations on a comparatively small scale. The Long company purchase gives the Prairie 40 retail stations, 15 bulk stations, and a compounding plant. The service stations are located on Highway No. 40 in Kansas. Headquarters of the Keeton company are in Salina.

The Prairie company, which has in the past confined most of its activities to the producing, purchasing and transportation branches of the industry, is expected to make further expansions along the marketing line.

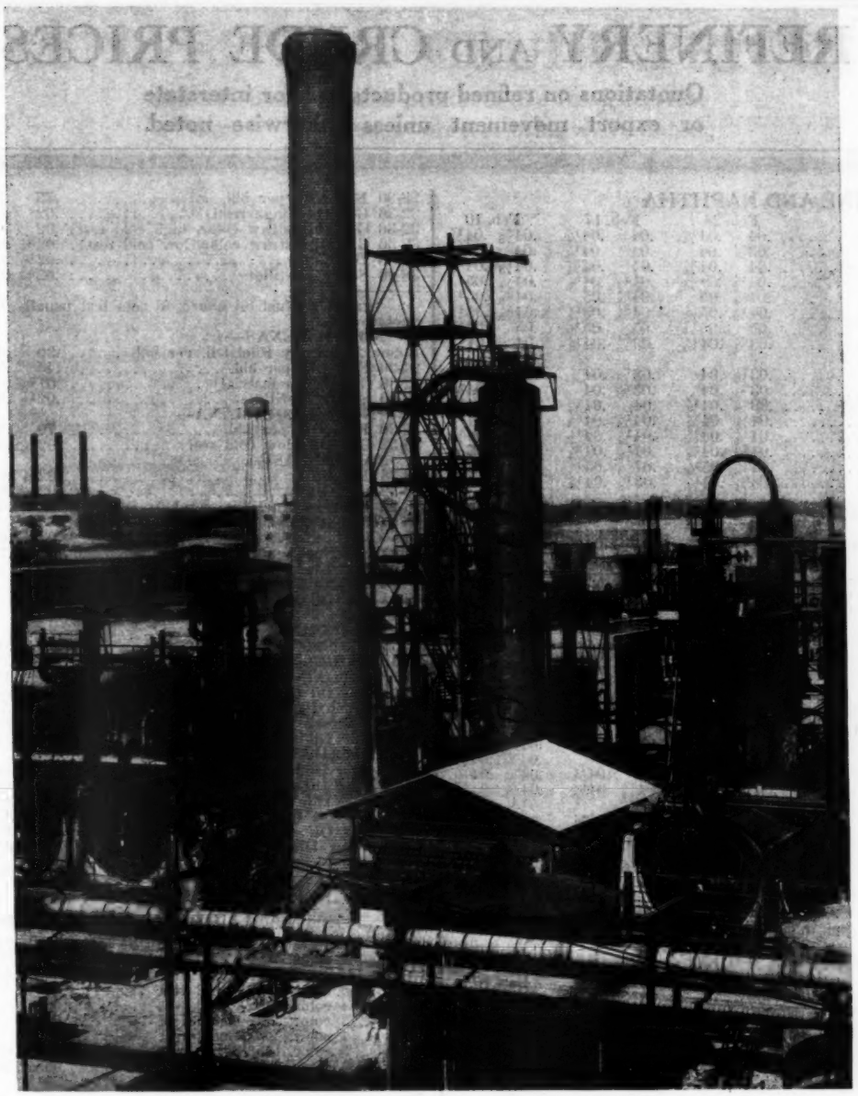
EXETER WILL MODERNIZE IDLE PERFECTION PLANT

The shutdown refinery of Perfection Refining Co. at Hynes, Calif., has been bought by Exeter Oil Co. and plans have been announced for bringing the equipment of the 1,000-bbl. skimming plant up to modern standards. Expansion of the refining facilities is indicated in the sale by the Exeter company of its subsidiary, the United States Refining Co., which operated a 5,000-bbl. skimming plant at Hynes and a 1,500-bbl. skimming plant at Torrance.

W. R. Cowan, until recently vice president of the United States company, is president of the Exeter company.

NEW YORK ANNUAL OIL TRADES BANQUET

Over 500 members and guests of Oil Trades Association of New York at Fifteenth Annual Banquet, Hotel Roosevelt



Specialized Refinery Engineering

Foster Wheeler distillation unit here shown is operating in the center of an existing shell still battery. The unit will process 5,000 barrels per day of dewaxed solution. Limited space governed the design and layout of the equipment.

Foster Wheeler distilling units are designed and erected only after a thorough study has been made of the conditions surrounding each installation. They include the knowledge and experience gained from installing and operating refinery equipment throughout the world.

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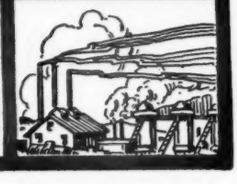
FOSTER WHEELER

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.



GASOLINE AND NAPHTHA

	Feb. 24		Feb. 17		Feb. 10	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.04	.04¼	.04	.04¼	.04⅛	.04¼
56-58 450 endpoint	.03⅞	.04	.04	.04¼	.04	.04¼
58-60 437 endpoint (U. S. Motor)	.04	.04⅜	.04	.04⅜	.04⅛	.04⅜
60-62 437 endpoint	.04⅛	.04⅜	.04¼	.04⅜	.04¼	.05
60-62 400 endpoint	.04¼	.05	.04⅜	.05	.04⅜	.05⅛
64-66 375 endpoint	.04½	.05¼	.04⅝	.05¼	.04⅝	.05¼
68-70 360 endpoint	.05	.05¼	.05	.05¼	.05	.05¼
64-66 437 endpoint (blend)	.03¾	.04¼	.03⅞	.04¼	.04	.04¼
NORTH TEXAS—						
50-52 450 endpoint	.03⅞	.04	.03⅞	.04	.04	.04¼
58-60 450 endpoint	.03⅞	.04	.03⅞	.04	.04	.04⅛
58-60 437 endpoint (U. S. Motor)	.03½	.04¼	.04	.04¼	.04⅛	.04⅜
60-62 400 endpoint	.04⅛	.04¼	.04¼	.04⅜	.04¼	.04⅜
64-66 390 endpoint	.04¼	.04½	.04¼	.04½	.04⅜	.04⅞
64-66 375 endpoint	.04½	.04¾	.04½	.04⅝	.04⅝	.05
68-70 360 endpoint	.04⅞	.05¼	.04⅞	.05¼	.05	.05¼
64-66 437 endpoint (blend)	.03¾	.04¼	.03⅞	.04¼	.04	.04½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.04⅜	.04¾	.04⅜	.04¾	.04½	.05
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.04¼	.04¾	.04⅜	.04¾	.04½	.05
PENNSYLVANIA—						
52-54 Naphtha	.06		.06		.06	
54-56 Naphtha	.06		.06		.06	
58-60 Gasoline	.06		.06		.06	
60 Gasoline	.06	.06¼	.06	.06¼	.06	.06¼
62 Gasoline	.06¼		.06¼	.06½	.06¼	.06½
64 Gasoline	.06½	.06¾	.06¼	.06¾	.06¼	.06¾
68-70 350 endpoint gasoline	.07¼		.07½		.07½	
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.08½	.10¼	.08	.10	.07	.08½
†58-62 400 endpoint domestic gasoline	.09	.10½	.09	.10½	.08	.09½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.03⅞	.04	.03⅞	.04	.04	.04¼
56-58 450 endpoint	.03⅞	.04	.03⅞		.04	.04¼
58-60 437 endpoint (U. S. Motor)	.03⅞	.04¼	.04	.04¼	.04⅛	.04½
60-62 400 endpoint	.04⅛	.04⅜	.04⅛	.04⅜	.04¼	.04⅜
64-66 375 endpoint	.04½	.04⅝	.04½		.04⅜	.05¼
64-66 437 endpoint (blend)	.03⅜	.04	.03⅞	.04¼	.04¼	.04½
68-70 360 endpoint	.04⅞	.05¼	.04⅞	.05¼	.05¼	.05½
GULF COAST (Export)—						
58-60 U. S. Motor	.05¼		.05¼		.05¼	
60-62 400 endpoint	.05½		.05½		.05½	
61-63 390 endpoint	.05⅝		.05⅝		.05⅞	
64-66 375 endpoint	.06⅛	.06¼	.06⅛	.06¼	.06⅛	.06¼

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

NATURAL GASOLINE

	Feb. 24		Feb. 17		Feb. 10	
OKLAHOMA (Group 3)—						
Grade A. 72-79.9. 375 e.p., rec. 90%	.03½		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼		.03½		.03½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.02¾		.03		.03¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¾		.03		.03	.03¼
Grade C, 80-92. 375 e.p., rec. 78%	.02¾		.03		.03	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03½		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03½		.03½		.03½	
Grade B, 76-83.9, 375 e.p., rec. 85%	.02¾		.03		.03¼	
Grade BB, 84-92. 375 e.p., rec. 85%	.02¾		.03		.03	
Grade C, 80-92, 375 e.p., rec. 78%	.02¾		.03		.03	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.03½		.03¾		.03¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.03		.03⅛	.03¼	.03¼	
Grade C, 80-92. 375 e.p., rec. 78%	.03		.03⅛	.03¼	.03¼	
CALIFORNIA—						
75-78 375-390 endpoint	.05	.06	.05	.06	.05	.06
CHICAGO DISTRICT (Based on Group 3)—						
Grade A. 72-79.9. 375 e.p., rec. 90%	.03½		.03¾		.03¾	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼		.03½		.03½	
Grade BB, 84-92, 375 e.p., rec. 85%	.02¾		.03		.03	

BURNING OIL

	Feb. 24		Feb. 17		Feb. 10	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.03	.03¼	.03	.03¼	.03	.03¼
42-44 water white kerosene	.03¼	.03½	.03¼	.03¾	.03¼	.03¾
NORTH TEXAS—						
41-43 water white kerosene	.02⅞	.03	.03	.03⅛	.03	.03⅛
40-41 water white kerosene	.02¾	.03	.02⅞	.03	.02⅞	.03
***NORTH LOUISIANA—**						
41-43 water white kerosene	.03½	.04	.03½	.04	.03½	.04
***ARKANSAS—**						
41-43 water white kerosene	.03½	.04	.03½	.04	.03½	.04
PENNSYLVANIA—						
43 Kerosene prime white	.04⅞		.04⅞		.04⅞	
45 Kerosene water white	.04⅞	.05	.04⅞	.05	.05	
46 Kerosene water white	.05	.05¼	.05	.05¼	.05¼	.05½
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04¾	.06	.04¾	.06	.04¾	.06
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02⅞	.03	.02⅞	.03¼	.02⅞	.03¼
42-44 water white kerosene	.03¼	.03½	.03¼	.03½	.03¼	.03½
GULF COAST (Export)—						
41-43 prime white	.04½		.04½		.04½	
44 water white	.05¼		.05¼		.05¼	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Feb. 24		Feb. 17		Feb. 10	
***OKLAHOMA (Group 3)**						
Below 18 gravity Fuel Oil, per bbl.	.40	.45	.40	.45	.42½	.50
18-22 Fuel Oil, per bbl.	.42½	.50	.42½	.50	.45	.52½
20-22 Fuel Oil, per bbl.	.45	.55	.47½	.55	.50	.57½
22-26 Fuel Oil, per bbl.	.50	.60	.55	.60	.55	.60
24-26 Fuel Oil, per bbl.	.57½	.65	.60	.65	.60	.65
26-30 Fuel Oil, per bbl.	.65	.70	.65	.75	.65	.75
28-30 Fuel Oil, per bbl.	.75	.85	.80	.90	.80	.90
32-36 Gas Oil (industrial)	.02	.02½	.02	.02½	.02	.02½
32-36 Gas Oil (straw color, high cold test)	.02	.02½	.02½	.02¼	.02½	.02¼
32-36 Gas Oil (straw color, low cold test)	.02⅜	.02½	.02⅜	.02½	.02½	.02⅝
36-38 Distillate	.02½	.02⅝	.02½	.02¾	.02⅝	.02¾
38-40 Straw Distillate	.02⅝	.03	.02¾	.03	.02¾	.03

*Prices on fuel oil above 40 cold test usually from 5 to 10 cents under general quotations.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.30	.35	.30	.35	.30	.35
24-26 Fuel Oil, per bbl.	.45	.50	.45	.55	.45	.55
32-36 Gas Oil (industrial)	.01⅞	.02	.01⅞	.02⅛	.01⅞	.02⅛
38-40 Straw Distillate	.02½	.02¾	.02½	.02¾	.02⅝	.02¾
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
30-32 Gas Oil (low cold test)	.02⅞	.03	.02⅞	.03	.02⅞	.03
***ARKANSAS—**						
33-36 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02½	.02¾	.02⅝	.02¾	.02⅝	.02¾
16-22 Refinery Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
GULF COAST (South Texas)—						
Gas Oil	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
Bunker C Fuel (cargo lots), per bbl.	.65	.70	.65	.70	.65	.70
Bunker C Fuel (small lots)	.90		.90		.90	
PENNSYLVANIA—						
30-34 Fuel Oil	.03⅛		.03¼		.03¼	
36-40 Fuel Oil	.03¼		.03½		.03½	
CALIFORNIA—						
33-36 Distillate	.02	.02½	.02	.02½	.02	.02½
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.55	.90	.55	.90	.55	.90
15-19 Fuel Oil (cargo lots. at itdewater), bbl.	.50	.80	.50	.80	.50	.80
†15-19 Fuel Oil, f.o.b. tank cars	.25	.70	.25	.70	.25	.70
27 plus Diesel, per bbl.	.80	1.05	.80	1.05	.80	1.05
30-34 Gas Oil	.85	1.05	.85	1.05	.85	1.05
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.45	.55	.50	.55	.55	.60
22-26 Fuel Oil, per bbl.	.55	.60	.55	.60	.60	.65
28-30 Fuel Oil, per bbl. (zero)	.80	.85	.85	.90	.90	.95
32-36 Gas Oil (industrial)	.01⅞	.02	.01⅞	.02⅛	.01⅞	.02⅛
32-36 Gas Oil (zero)	.02⅜	.02½	.02½	.02⅞	.02½	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.02⅞

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	Feb. 24		Feb. 17		Feb. 10	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
150 vis., 3 color, 20-25 cold test	.07		.07		.07	
150 vis., 4 color, 20-25 cold test	.06½		.06½		.06½	
180 vis., 3 color, 23-28 cold test	.08½		.08½		.08½	
180 vis., 4 color, 23-28 cold test	.08		.08		.08	
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09½		.09½		.09½	
200 vis., 5 color, 23-28 cold test	.09		.09		.09	
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¼	.11½	.11¼	.11½	.11¼	.11½
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	
280 vis., 4 color, 25-30 cold test	.14½		.14½		.14½	
280 vis., 5 color, 25-30 cold test	.13½		.13½		.13½	
Cylinder Stocks:						
600, steam refined, light green	.06	.07	.07	.08	.07	.08
600, steam refined, dark green	.04½	.05½	.04½	.05½	.04½	.05½
190-200 vis., D color, Bright Stocks	.25		.25		.25	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.18	.19	.19	.20	.19	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.17	.18	.18	.19	.18	.19
150-160 vis., D color, Bright Stocks 25-40 c.t.	.16½	.17½	.17½	.18½	.17½	.18½
150-160 vis., E color, Bright Stocks	.17	.18	.17	.18	.17	.18
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02⅛	.02	.02⅛

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06	.05½	.06	.05½	.06
34 Sundebloom	.05½		.05½		.05½	
36 Miners' Neutral	.05	.05½	.05	.05½	.05	.05½
150, 3 color	.14	.16	.12	.12½	.11¼	.12
180, 3 color	.16	.17	.16	.16½	.16	
200, 3 color	.18½	.19	.18	.18½	.17½	.18
220, 3 color	.23	.24	.21	.22	.20	
600, steam refined	.08½	.09	.08½	.09	.08¾	.09
650, steam refined	.12	.13	.12	.13	.12½	.13½
600, Pennsylvania Flash	.13	.14	.13	.14	.13	.15
630, Pennsylvania Flash	.19	.20	.19	.20	.20	
600, E filtered	.12		.12		.13	
600, D filtered, Oil City	.17	.18	.17	.18	.17	.19
Pennsylvania Bright Stocks below 35 C.T.	.18	.19	.18	.19	.18	.19
Pennsylvania Bright Stocks above 35 C.T.	.17		.17		.17	
*122-124 White Crude Scale Wax	.02⅜		.02⅜		.02⅜	
124-126 White Crude Scale Wax	.02⅝		.02½		.02½	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06	.06¼	.06	.06¼	.06	.06¼
200 vis., 3 color, pale oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
300 vis., 3 color, pale oil	.09½	.09¾	.09½	.09¾	.09½	.09¾
500 vis., 3½ color, pale oil	.10¾	.11	.10¾	.11	.10¾	.11
750 vis., 3½ color, pale oil	.12¼	.12½	.12¼	.12½	.12¼	.12½
1,200 vis., 3½ color, pale oil	.14¾	.15	.14¾	.15	.14¾	.15
2,000 vis., 4 color, pale oil	.15¾	.16	.15¾	.16	.15¾	.16
200 vis., 5-6 color, red oil	.07½	.07¾	.07½	.07¾	.07½	.07¾
300 vis., 5-6 color, red oil	.08¾	.09	.08¾	.09	.08¾	.09
500 vis., 5-6 color, red oil	.10	.10¼	.10	.10¼	.10	.10¼

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

750 vis., 5-6 color, red oil	.11½	.11¾	.11½	.11¾	.11½	.11¾
1,200 vis., 5-6 color, red oil	.13¾	.14	.13¾	.14	.13¾	.14
2,000 vis., 6 plus color	.15¾	.16	.15¾	.16	.15¾	.16
CALIFORNIA—						
130 vis., 2½-3 color	.09	.09½	.09	.09½	.09	.09½
200 vis., 2½-3 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 3-3½ color	.10¾	.11½	.10¾	.11½	.10¾	.11½
350 vis., 3½-4 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
400 vis., 3½-4 color	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
400 vis., 5-6 color	.11	.12	.11	.12	.11	.12
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
500 vis., 5-6½ color	.12	.12¾	.12	.12¾	.12	.12¾
600 vis.. 6½ plus color	.13	.14	.13	.14	.13	.14

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 24		Feb. 17		Feb. 10	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.07½	.08	.07	.08	.07	.08
Kerosene, water white, 41-43	.06¼	.06½	.06¼	.06½	.06¼	.06½
*Fuel Oil, Bunker "C," 41-43	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	1.85		1.85		1.85	
Gas Oil, 28 gravity plus	.04¼	.05¼	.04¼	.05¼	.04¼	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tnak car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04½		.04½		.04½	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅛		.03⅛		.03	
125-127 a.m.p., per lb.	.03½		.03½		.03⅜	
130-132 a.m.p., per lb.	.03¾		.03¾		.03¾	
133-135 a.m.p., per lb.	.04⅜		.04⅜		.04⅜	
135-137 a.m.p., per lb.	.04¾		.04¾		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.03¼		.03¼		.03¼	
Extra Amber	.03⅜		.03⅜		.03⅜	
Cream	.06		.06		.06	
Lily White	.06¾		.06¾		.06¾	
Snow White	.08		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 24		Feb. 17		Feb. 10	
600, steam refined cylinder stocks, in bbls..	.16¾		.16½		.16½	
635, steam refined	.17½		.17½		.17½	
650, steam refined	.20½		.21		.21	
600, Pennsylvania Flash	.21		.21½		.21½	
630, Pennsylvania Flash	.28		.28½		.28½	
600, Warren E	.22		.23		.23	
600, Oil City E	.21		.22		.22	
Light 140-150 Bright Stocks	.25½	.26	.25	.26	.25	.26
Dark 140-150 Bright Stocks	.23½	.24	.23	.24	.23	.24

LOS ANGELES EXPORT PRICES

	Feb. 24		Feb. 17		Feb. 10	
Kerosene, water white	.04¾	.06	.04¾	.06	.04¾	.06
*U. S. Motor Gasoline, 53-55, 437 e.p.	.04¾	.07	.04¾	.07	.04¾	.07
*60-62, 400 endpoint gasoline	.06	.08	.06	.08	.06	.08

*For coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Rusk County, Tex.* (Feb. 10, 1931) ...$ .40
Corsicana heavy (Oct. 28) ..... .75
Other fields .....See gravity table

*Posted by Panola Pipe Line Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties ....See gravity table

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock, Mitchell and Ector .....See gravity table, Column 3
Chalk† (April 10, 1930) $0.75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover (all grades) (Oct. 30, 1930).$0.70
Carterville, Sarepta and Cotton Valley, below 36 gravity .....See gravity table
Bellevue (Oct. 30, 1930) 1.00
Urania (Oct. 30, 1930) ..... .75
Calion, heavy (Oct. 30, 1930) ..... .70
East El Dorado (Oct. 30, 1930) ..... .70
Other fields .....See gravity table

Note—Smackover and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Gulf Refining Co. and Magnolia Petroleum Co.; Calion posted by Gulf Refining Co.

GULF COAST

Grade A (Jan. 14)* $0.80
Grade B, 25° and upward...See gravity table
Jennings, La. (Oct. 30, 1930)†..... .80
Refugio (light) .....Same as Grade B
Refugio (heavy) (Jan. 14)* ..... .69
Markham (Jan. 15, 1931)‡ ..... .69
High Island (Oct. 30, 1930)† ..... .75

*Humble Oil & Refining Co. †Gulf Refining Co. of Louisiana. ‡Texas Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (Feb. 15, 1930) $0.87
33 gravity and above ..... .87
Under 33 gravity ..... .65
Dutton Creek (Oct. 28, 1930) 1.01
Rock Creek, Wyo. (Oct. 28, 1930) 1.01
Salt Creek .....See gravity table
Big Muddy (Oct. 28, 1930) 1.00
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light (Oct. 28, 1930) 1.25
Mule Creek (May 21, 1929) 1.20
Elk Basin (Oct. 28, 1930) 1.25
Lance Creek (Oct. 28, 1930) 1.33
Poison Spider (Mar. 14, 1927) 1.00
Notches (Mar. 14, 1927) ..... .65
Dallas-Derby (Jan. 1, 1931) ..... .70
Hudson (Jan. 1, 1931) ..... .75
Rex Lake (Feb. 22, 1930) 1.10
Osage (Nov. 1, 1930) ..... .85
Lost Soldier (Oct. 28, 1930) ..... .80
Hamilton Dome (Mar. 14, 1927) ..... .85
Greybull (Oct. 28, 1930) 1.25
Torchlight (Oct. 28, 1930) 1.25
Cat Creek (Oct. 28, 1930) 1.25
Pondera (Montana) (Oct. 28, 1930) 1.45
Sunburst (Montana) (Oct. 28, 1930) 1.55
Hogback (Feb. 15, 1930) 1.40
Artesia (New Mexico) (Oct. 28, 1930).. .75
Lea County .....See gravity table
Border, Mont. 1.55
Red Coulee, Alberta 1.55

Note—Salt Creek, Osage, Cat Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both com-

(Continued on Page 118)

CRUDE OIL GRAVITY TABLE

Gravity—	Oklahoma-Kansas, Central and East Central Texas, North La.-Ark. 1	North Texas (Wichita Falls district) 2	Crane, Upton, Ector, Crockett, Howard, Glasscock, Mitchell (West Texas), Lea, N. Mex. 3	Wheeler County (Texas Panhandle) 4	Gray County (Texas Panhandle) 5	Carson and Hutchinson (Texas Panhandle) 6	Salt Creek, Wyo. 7	Stephens, Ark. 8	Winkler-Tecos (West Texas) 9	Grade B Gulf Coast and Refugio, Texas 10
Below 25	....	....	.50	....	....	....	....	....	.55	.69
25 to 25.9	....	....	.62	....	....	....	....	....	.57	.71
26 to 26.9	....	....	.54	....	....	....	....	....	.59	.73
27 to 27.9	....	....	.56	....	....	....	....	....	.61	.75
28 to 28.9	....	....	.58	....	....	....	....	....	.63	.77
Below 29	.65	.55	....	....	.48	.43	....	.54	....	....
29 to 29.9	.69	.57	.60	....	.50	.45	.69	.58	.65	.79
30 to 30.9	.73	.59	.62	....	.52	.47	.72	.62	.67	.81
31 to 31.9	.77	.61	.64	....	.54	.49	.77	.66	.69	.83
32 to 32.9	.81	.63	.66	....	.56	.51	.81	.70	.71	.85
33 to 33.9	.85	.65	.68	....	.58	.53	.85	....	.73	.87
34 to 34.9	.89	.67	.70	....	.60	.55	.89	....	.76	.89
35 to 35.9	.92	.69	.72	....	.62	.57	.92	....	.77	.91
36 to 36.9	.95	.71	.74	....	.64	.59	.95	....	.79	.93
37 to 37.9	.98	.73	....	....	.66	.61	.98	....	....	.95
38 to 38.9	1.01	.75	....	....	.68	.63	....	....	....	.97
39 to 39.9	1.04	.77	....	....	.70	.65	....	....	....	.99
40 and above	1.07	.79	....	....	.72	.67	....	....	....	1.01

Column 1—Carter Oil Co. posted price schedule for Oklahoma and Kansas on October 28, 1930. Humble Oil & Refining Co. posted for North and Central Texas and East Central Texas on October 28 but made new price schedule on January 14, 1931, affecting North Texas or Wichita Falls district (see Column 2). All other companies adopted Column 1 schedule.

Column 2—Humble Oil & Refining Co. posted above prices on North Texas, Wichita, Wilbarger, Archer and North Young Counties, on January 14; The Texas Company on November 15; Stanolind Crude Oil Purchasing Co. on January 16; Gulf Refining Co. on January 14; H. F. Wilcox Oil & Gas Co. on January 14. Other companies applied the schedule to all North Texas counties in which they bought, including Clay, Montague and Foard.

Column 3—Posted by Humble Oil & Refining Co. on October 28.

Column 4—Companies quit posting April 10, but crude takes present Hutchinson-Carson prices.

Column 5—Humble Oil & Refining Co. posted above prices January 14, 1931; other purchasers adopted schedule.

Column 6—Humble Oil & Refining Co., January 14.

Column 7—Midwest Refining Co. on October 28. All crude over 37 degrees 98 cents.

Column 8—Louisiana Oil & Refining Co. and Atlantic Oil Producing Co., October 30.

Column 9—Humble Oil & Refining Co., October 28.

Column 10—Humble Oil & Refining Co. posted above prices on January 14, 1931, thus meeting the Gulf Pipe Line Co. and Gulf Refining Co. of Louisiana's price schedule posted on October 30, 1930.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co. (effective September 15, 1930), Union Oil Co. (effective September 15, 1930)

Gravity—	Long Beach, Seal Beach, Alamitos Hts., Huntington Beach, Inglewood, Torrance, Richfield, Olinda, Brea Canyon 1	Whittier, La Habra, Coyote Hills 2	Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Santa Maria, Coalinga 6	Wheeler Ridge 7	Orcutt, Ventura, Rincon 8	Ventura Avenue 9	Elwood Terrace 10	Athens, Rosecrans, Dominguez 11
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	1.04	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.12	1.08	1.06	1.08	1.05	1.04	1.04	1.08	1.05	....	1.12
25 to 25.9	1.17	1.12	1.10	1.11	1.09	1.06	1.06	1.11	1.10	....	1.17
26 to 26.9	1.22	1.16	1.14	1.15	1.13	1.08	1.08	1.15	1.15	....	1.22
27 to 27.9	1.26	1.21	1.18	1.19	1.18	1.11	1.10	....	1.19	....	1.27
28 to 28.9	1.30	1.25	1.23	1.23	1.23	1.15	....	....	1.23	....	1.32
29 to 29.9	1.34	1.29	1.29	1.26	1.28	1.19	....	....	1.27	....	1.37
30 to 30.9	1.38	1.33	1.35	1.29	1.33	1.23	....	....	1.31	....	1.42
31 to 31.9	1.43	....	1.40	....	1.38	1.27	....	....	1.35	....	1.47
32 to 32.9	1.48	....	1.47	....	1.43	1.31	....	....	1.41	....	1.52
33 to 33.9	....	....	1.53	....	1.48	1.35	....	....	1.47	....	1.57
34 to 34.9	....	....	1.59	....	1.53	1.39	....	....	1.53	1.32	1.62
35 to 35.9	....	....	1.65	....	1.58	1.43	....	....	1.59	1.39	1.66
36 to 36.9	....	....	....	....	1.63	....	....	....	....	1.46	1.72
37 to 37.9	....	....	....	....	1.68	....	....	....	....	1.53	1.78
38 to 38.9	....	....	....	....	1.73	....	....	....	....	1.60	1.84
39 to 39.9	....	....	....	....	1.78	....	....	....	....	1.66	1 90
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	1.96
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.02
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.08

Note—Standard Oil Co. of California, effective December 18, 1930, established the following posted prices for oil purchased in the Playa Del Rey Field: 20-20.9 degrees, 74 cents; 21-21.9 degrees, 77 cents; 22-22.9 degrees, 81 cents; 23-23.9 degrees, 84 cents; 24-24.9 degrees, 87 cents; 25 degrees and above, 90 cents. Union Oil Co. adopted same price schedule on December 18. On January 20 the Union Oil Co. announced a gathering charge of 5 cents per barrel for receiving and delivering the oil into its pipe line.

Kern River, Newhall-McKittrick, Mount Poso and Round Mounta'n, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11 the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents. Fruitvale, posted by General Petroleum Co., 11-13.9, 50 cents; 14 gravity and a'ove, 55 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

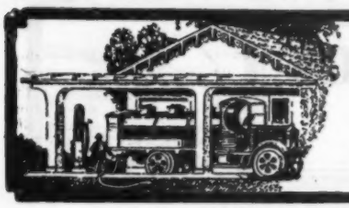
Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

Column 5—Price change posted by Standard of California September 16.

Column 6—Oil below 14 gravity posted at 45 cents.

Column 8—Posted by General Petroleum Co.

Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.20; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, $1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Feb. 24

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago*	16.0	17.0	3.0	11.0
Decatur, Ill.	16.4	17.4	3.0	11.0
E. St. Louis	16.7	16.7	3.0	10.2
Joliet	16.4	17.4	3.0	11.0
Peoria	16.4	17.4	3.0	11.0
Quincy	16.2	17.2	3.0	10.8
Davenport, Ia.	16.5	17.5	3.0	11.3
Des Moines	16.5	17.5	3.0	11.3
Keokuk	16.5	17.5	3.0	11.3
Sioux City	16.1	17.1	3.0	10.9
Duluth, Minn.	17.5	18.5	3.0	11.9
Mankato	17.1	18.1	3.0	11.7
Minneapolis	17.2	18.2	3.0	11.9
La Crosse, Wis.	16.2	17.2	3.0	12.0
Milwaukee	15.1	16.1	3.0	10.9
Madison	15.3	16.3	3.0	11.1
Detroit, Mich.	16.8	16.8	3.0	12.7
Grand Rapids	16.7	17.7	3.0	12.6
Saginaw	16.9	17.9	3.0	13.5
Evansville, Ind.	17.1	18.1	4.0	11.9
Indianapolis	17.2	18.2	4.0	12.1
South Bend	17.4	18.4	4.0	12.2
Fargo, N. D.	18.9	17.0	3.0	13.9
Huron, S. D.	18.2	17.5	4.0	12.7
Sioux Falls	17.8	17.0	4.0	12.4
K. C., Mo.	15.9	16.9	3.0	9.6
Springfield†	15.9	16.9	3.0	10.5
St. Louis†	14.9	15.9	2.5	10.3
St. Joseph	15.5	16.5	3.0	10.1
Wichita, Kans.	14.8	13.8	3.0	9.8
Bartlesville, Ok.	15.5	18.5	4.0	9.5

*Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

†State tax 2 cents; remainder city tax.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discounts on the previous month's purchases.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Wh'ls'e price	Retail price	Incl'ds tax of	tank wagon
Fresno	21.0	21.0	3.0	17.0
San Francisco	21.0	21.0	3.0	15.5
Los Angeles	20.5	20.5	3.0	15.5
Reno, Nev.	22.0	20.0	4.0	19.0
Portland, Ore.	22.5	22.5	4.0	16.5
Seattle, Wash.	21.5	21.5	3.0	16.5
Tacoma	21.5	21.5	3.0	16.5
Spokane	22.0	22.0	3.0	20.5
Phoenix, Ariz.	20.5	22.5	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atl'tic City, N.J.	14.5	16.5	3.0	11.5
Newark	13.5	15.5	3.0	10.5
Annapolis, Md.	16.0	17.0	4.0	11.0
Baltimore	15.2	16.2	4.0	9.5
Cumberland	17.0	18.0	4.0	12.0
Wash'gton, D.C.	13.7	14.7	2.0	10.7
Danville, Pa.	17.8	18.8	5.0	11.8
Norfolk, Va.	16.3	17.3	5.0	10.0
Petersburg	17.3	18.3	5.0	11.3
Roanoke	18.0	18.0	5.0	12.0
Richmond	16.7	17.7	5.0	10.7
Charles'n, W.Va.	16.5	17.5	4.0	11.5
Keyser	17.1	18.1	4.0	12.0
Parkersburg	15.3	16.3	4.0	10.3
Wheeling	16.4	17.4	4.0	11.4
Charlotte, N. C.	18.3	19.3	6.0	12.3
Hickory	18.6	19.6	6.0	12.6
Mt. Airy	18.5	19.5	6.0	12.5
Salisbury	18.5	19.5	6.0	12.5
Charleston, S.C.	17.3	18.3	6.0	10.3
Columbia	19.3	20.3	6.0	12.3

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	17.25	18.25	4.0	11.25
McCook	18.75	20.75	4.0	13.75
Norfolk	17.25	17.25	4.0	11.75
N. Platte	18.75	20.75	4.0	13.50
Scottsbluff	18.75	20.75	4.0	13.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	16.5	17.5	6.0	12.0
Baton Rouge	17.5	18.5	5.0	13.0
Alexandria†	18.5	19.5	6.0	13.0
Lafayette*	18.5	19.5	6.0	13.0
Lake Charles*	18.5	19.5	6.0	13.0
Shreveport	17.5	18.5	5.0	13.0
Knoxville, Tenn.	19.0	20.0	5.0	15.0
Memphis	17.0	18.0	5.0	12.5
Chattanooga	18.5	19.5	5.0	13.0
Nashville	18.0	19.0	5.0	15.0
Bristol	20.0	21.0	5.0	14.0
Lt. Rock, Ark.	18.5	19.5	5.0	12.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in Parish of Rapides.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	16.0	17.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 14 cents.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	14.0	19.0	....	12.0
Philadelphia	14.0	19.0	....	12.0
Scranton	14.0	19.0	....	12.0
Allentown	14.0	19.0	....	12.0
Altoona	14.0	19.0	....	12.0
Erie	14.0	18.0	....	11.0
Dover, Del.	17.0	19.0	3.0	12.0
Wilmington	17.0	19.0	3.0	12.0
Springf'd, Mass.	17.5	19.5	3.0	10.0
Worcester	17.3	19.3	3.0	10.0
Boston	14.5	16.5	3.0	10.0
Providence, R.I.	12.7	14.7	2.0	10.0
Hartford, Conn.	17.5	19.5	2.0	10.0
New Haven	17.6	19.6	2.0	10.0

*Includes tax of 3 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. Atlantic Refining Co. recognizes a 3-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	14.0	17.0	4.0	13.5
Pueblo	14.0	17.0	4.0	13.5
Grand Junction	18.0	19.0	4.0	17.0
Casper, Wyo.	17.0	20.0	4.0	13.0
Cheyenne	18.0	19.0	4.0	13.5
Butte, Mont.	19.0	20.0	5.0	18.0
Billings	20.0	23.0	5.0	16.5
Great Falls	20.0	23.0	5.0	18.0
Helena	20.0	23.0	5.0	18.0
Salt Lake, Utah	19.0	22.0	3.5	17.0
Albu-que, N. M.	16.0	20.0	5.0	14.0
Boise, Idaho	22.5	....	5.0	19.0
Twin Falls*	22.5	....	5.0	19.0

*Two and one-half cents off tank wagon to dealers at time of delivery.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12.0	8.0
V.M.&P. naphtha	14.0	9.5
Cleanors' naphtha	16.2	11.0
Stanisol	16.2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20.0	22.0	6.0	13.5
Augusta	20.0	22.0	6.0	13.5
Macon	20.0	22.0	6.0	13.0
Savannah	20.0	20.0	6.0	13.0
Birm'ham, Ala.	19.0	21.0	5.0	15.0
Mobile	19.0	21.0	4.0	15.0
Montgomery	19.0	21.0	4.0	15.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	18.0	20.0	5.0	13.5
Natchez	18.0	20.0	5.0	13.5
Gulfport	16.0	16.0	5.0	13.5
Vicksburg	18.0	18.0	5.0	13.0
Jack'ville, Fla.	19.0	21.0	6.0	14.0
Miami	20.0	22.0	6.0	14.0
Pensacola	20.0	22.0	6.0	13.5
Tampa	19.0	21.0	5.0	13.0
Lexington, Ky.	17.0	18.0	5.0	14.5
Covington	17.0	18.0	5.0	13.5
Louisville	16.0	18.0	5.0	11.0
Ashland	17.0	19.0	5.0	13.0
Paducah	17.0	19.0	5.0	12.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	19.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	15.0	18.0	4.0	11.0
Fort Worth	15.0	18.0	4.0	10.0
Houston	15.0	19.0	4.0	11.0
San Antonio	15.0	19.0	4.0	10.0
El Paso	16.0	20.0	4.0	12.0
Texarkana	17.0	17.0	4.0	11.0
Muskogee, Ok.	15.0	18.0	4.0	9.0
Okla. City	13.0	16.0	4.0	10.0
Tulsa	13.0	17.0	4.0	10.0
Ft. Smith, Ark.	17.5	18.5	5.0	12.0
Little Rock	16.0	17.0	5.0	12.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	16.6	17.6	2.0	15.6
New York*	15.3	15.3	2.0	14.3
Buffalo	15.8	15.8	3.0	14.8
Rochester	16.0	16.0	3.0	14.0
Syracuse	16.8	16.8	3.0	14.8
Boston, Mass.	15.5	15.5	2.0	13.5
Augusta, Me.	15.8	15.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

TANK WAGON CHANGES

Magnolia Petroleum Co. posted gasoline tank wagon and station prices of 15 cents and 18 cents respectively in Dallas and Fort Worth, Tex., and 15 cents and 19 cents in Houston and San Antonio, Tex., February 9.

Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices 2½ cents in Little Rock, Ark., to 18.5 and 19.5 cents on February 16.

GULF COAST MARKETS SLOW

HOUSTON, Tex., Feb. 24.—Gulf Coast refinery markets continued to mark time as far as fuel oil, gas oil and lubricating oils were concerned. Gasolines were unsettled. No further price reductions were indicated in the local spot gasoline market but contract material was being moved on a low scheduled basis, and conditions otherwise were bearish.

Cargo lot fuel remained at 65 cents minimum with no leaning either upward or downward as has been the situation for the past two months. Sellers apparently have not been trying to push sales and no indication of any new business is in sight. The quotation of 65 cents is nominal as far as no spot sales are being made.

Gas oil prices are steady at 3⅛ to 3¼ cents, although no new business is reported. Pale and red oils are being held at prevailing quotations which have existed for several months.

OIL WELL IN ITALY

NEW YORK, Feb. 21.—The search for petroleum deposits in Italy has met with some success with the bringing in of a well at 700 feet depth at Fontevivo in the province of Parma. The new well is flowing 40 bbls. an hour initial. Considerable importance is attached to this well, which is producing good quality oil, as previous wells in Italy have generally had to be pumped and recovery costs have been very high.

Further drilling is reported in the Fontevivo area, and drilling has also been started near Lake Leprignane, near Rome, where favorable geophysical reports have been made.

CRUDE OIL PRICES

(Continued from Page 117)

panies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Ohio Oil Co. and Continental Oil Co. Latter company posted 50 cents per barrel January 1, 1931. Border and Red Coulee posted by Imperial Refining Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Oct. 28, 1930)*	$0.90
Luling (Oct. 28, 1930)†	.75
Mirando (Jan. 14)*	.69
Pettus (Oct. 28, 1930)*	1.10
Salt Flat (Oct. 28, 1930)*	.90
Thrall‡	..
Lytton Springs (Lockhart) See gravity table	
Dobrowolski (Oct. 25, 1930)§	..
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01
Somerset (Oct. 25, 1929)¶	..
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. §Grayburg Oil & Refining Co. Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ¶Pioneer Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective Nov. 12, 1930)

Penna Grade Oil in National Transit Lines (Pennsylvania)	$1.85
Penna Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	1.80
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.70
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930)	1.45
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Dec. 31, 1930)	1.15
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky)	1.10
Wayne District Oil in Cumberland Pipe Lines	1.17

Tide Water Pipe Co.

Bradford district (Nov. 12, 1930)	$2.15
Allegany district (Nov. 12, 1930)	2.15

Pure Oil Co.

Cabin Creek, W. Va. (Nov. 12, 1930)	$1.70
Kelly Creek, W. Va. (Nov. 12, 1930)	1.70
Bradford Hollow, W. Va. (Nov. 12, 1930)	1.70

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective Oct. 28, 1930)

Lima	$1.10
Wooster	1.40
Illinois	1.30
Indiana	.87
Princeton	1.20
Plymouth	.89
Western Kentucky	1.15
Midland, Mich.*	1.10
Dundee, Mich. (Oct. 26)†	..
	Same as Mid-Continent gravity scale
Upper and Lower Traverse Sands, Mich. (Oct. 28, 1930)†	..
	Same as Mid-Continent gravity scale
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (Oct. 28)‡	.81
Oil City, Ky.§ (Jan. 14)	.80
Oil Springs (Canada) (Oct. 28)¶	1.57
Petrolia (Canada) (Oct. 28)¶	1.50
Alberta (Canada)‖:	
50° and above	2.71
45 to 45.9	2.17

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil, Ltd. ‖Posted by Imperial Oil, Ltd., and Regal Oil & Refining Co. of Calgary.

MEXICAN CRUDE

Panuco*	$0.50

*F.o.b. ship, based on January transactions and exclusive of taxes and bar dues.

STUDY LEAKAGE FROM NATURAL GAS PIPE LINES

(Continued from Page 23)

mation of the leakage condition of a line can be made by measuring all gas entering and leaving and comparing the two sets of measurements. Tests of this kind necessarily have to cover much longer time intervals than tests using the pressure drop method. The difference between the measurement of the gas into the line and the gas from the line is the leakage, provided that the other factors entering such a method of determination are taken into account. The measurements may be in error only a small per cent, but since the leakage ordinarily is only a small per cent of the total gas that flows through the line, a small per cent error in measurement might cause an appreciable error in the determination of the rate of leakage.

Gauge Pressure

For all practical purposes, the rate of leakage from a pipe line is approximately proportional to the gauge pressure. If a test for leakage is made on a pipe line and it is found that the rate of leakage is 6,000,000 feet per year at a test pressure of 300 pounds per square inch gauge, the rate of leakage at 100 pounds per square inch gauge is approximately 2,000,000 feet per year. For rates of leakage usually found in operating pipe lines, this proportionality between leakage and pressure is true. For unusually low rates of leakage, this does not hold true. Although no definite relation has been established for such conditions, it has been noticed that as the rate of leakage at any definite pressure decreases, the relation approaches an equation based on the square of the gauge pressure.

The method of expressing leakage losses from a pipe line in such a way to express actual leakage and at the same time have a comparable basis of comparison is of importance. The expression of leakage losses as a percentage of the total gas transmitted is not a very good basis of expressing the leakage. A line operated under a small load would have an appreciable higher per cent leakage than the same line operated under a heavy load, although the loss of gas was practically the same in the two cases. For comparable purposes, leakage can be expressed as so many cubic feet per year per mile of 3-inch line at a gauge pressure of 100 pounds per square inch. This is based on the assumption that the chance for leakage is proportional to the area of the internal surface of pipe exposed to the gas. Thus the leakage figures for all pipe lines can be reduced to the number of cubic feet per year per mile of 3-inch pipe. Since for all practical purposes the leakage rate is proportional to gauge pressure, then this comparable basis can be defined further as the number of cubic feet per year per mile of 3-inch line at a gauge pressure of 100 pounds per square inch.

The formula for calculating the leakage on the 3-inch basis is $L = 3{,}225d$ (rate of pressure drop) where L is the leakage in 1,000 cubic feet per year per mile of 3-inch line. (Pressure base is 14.4 pounds per square inch.) d is the actual internal diameter of the pipe line tested. The rate of pressure drop is expressed in pounds per square inch per minute.

For instance, assume that the rate of pressure drop obtained in a leakage test is 0.01 pounds per square inch per minute; the test being made on a 6-inch line (inside diameter of 6.065 inches). Then the rate of leakage per year per mile of 3-inch line is $3{,}225 \times 6.065 \times 0.01$ or 195,600 cubic feet.

If this line were 25 miles long, the conversion to actual leakage from the line is as follows:

$$\text{Actual leakage} = \frac{6.065}{3.068} \times 25 \times 195{,}600$$

$$= 9{,}667{,}000 \text{ cubic feet per year.}$$

The conversion from any test pressure to the 100 pounds per square inch base pressure or from the 100 pounds per square inch base pressure to any desired pressure is made on the assumption that the rate of leakage is directly proportional to the gauge pressure. If the rate of leakage at a pressure of 100 pounds per square inch gauge is 1,000,000 feet per year, it is assumed that the rate at 250 pounds per square inch gauge is $1{,}000{,}000 \times 250/100$ or 2,500,000 feet per year.

A Paying Proposition

The leakage tests that have been made on pipe lines and the constant study made by operating companies to eliminate sources of leakage where possible, and to at least minimize the leakage as much as possible, has shown that leakage studies and reduction are a paying proposition. Systematic tests, when made properly, not only conserve gas but can be made to show savings which when expressed in actual dollars and cents are appreciable. Such tests reveal the unsuspected sources of operating loss, actual leakage from lines to indicate needed repairs, the reduction of leakage rate by making the needed repairs, leakage on newly constructed lines that should be eliminated before the lines are put into operation, and the amount of money that can be put into repairs, reconstruction and reconditioning of old lines. Actual leakage tests also have been responsible for a decided increase in the operating efficiency of pipe lines.

For ordinary rates of leakage, if a line is to be operated at a maximum pressure of 300 pounds per square inch, the pressure for test purposes should not be made at 600 or 700 pounds per square inch. It has been shown that if the greatest pressure to which a pipe line has been subjected is increased the rate of leakage at any certain pressure increases. For instance, the leakage from a pipe line might be 160,000 feet of gas per year per mile of 3-inch line at a gauge pressure of 100 pounds per square inch when the greatest pressure to which the line has been subjected is 300 pounds per square inch. If the line then is subjected to a pressure of 600 pounds per square inch, the leakage per year per mile of 3-inch line at a pressure of 100 pounds per square inch might increase to 200,000 feet of gas. For this reason, it is good practice to keep the greatest pressure to which the line is subjected as low as possible. In some rare cases, the leaks might be of such physical nature and the rate of leakage from them so low that additional pressure would close them more and cause a decreased leakage. This is the exception rather than the rule and should not affect any recommendations of not submitting a pipe line to excessive pressures that are not needed for operation.

This same reasoning applies to the pressures that are ordinarily held on a pipe line during its normal operation. In addition, since the rate of leakage is proportional to the gauge pressure, there is actually more leakage at the higher pressure even though the physical nature of the leaks do not change. Therefore, it is good policy to maintain as low operating pressures as is consistent with good service. There obviously is no good reason for keeping a pressure of 200 pounds per square inch on a pipe line when the demand can be ably taken care of if the line is operated at a pressure of 50 pounds per square inch, especially when the leakage is at least four times as great at the 200-pound pressure.

Show Other Operating Losses

There are certain operating losses in pipe lines that probably would be overlooked and neglected if leakage tests did not reveal their magnitude. Improperly plugged outlet connections, poor screw fittings, etc., are sources of operating losses.

The question of allowable leakage from pipe lines is open to argument. Some very excellent observations have been made on this question by Williams[2]. There are many conditions that affect leakage to make it difficult to define on any one comparable basis. An actual test showed the leakage from about 2 miles of connecting line to be 2,131,000 feet per year per mile of 3-inch line at 100 pounds pressure. The actual loss from the line expressed in dollars and cents was $31.12. Another line leaked 253,200 feet per year per mile of 3-inch line at 100 pounds pressure, but due to the larger size of line and the higher operating pressure, the actual loss was $1,580 per year. Obviously, not as much money could be spent profitably in repairing the first line as the second, although the rate of leakage from the second expressed on the comparable basis was much smaller. Some very interesting figures were given relative to the welding of old lines. Most of the welds were 2-inch, there being 609 welds, 596 of them 2-inch, 3 of them 3-inch, and 10 of them 6-inch. The total cost per weld was $1.0223, the costs being carbide, $0.0554; oxygen, $0.0647; welding iron, $0.0200, and labor and truck, $0.8822. The last item is the most important and its apparent high cost is due principally to the amount of time necessary to strip the lines and prepare for welding. In the final analysis, the reasonable or allowable leakage is closely connected with the money that has to be spent for repairs; so that the reasonable or the allowable leakage is that which cannot be reduced further without an excessive expenditure of money.

The improvement in the leakage conditions of pipe lines has been very noticeable during the past several years. Leakage departments have been established and work in close harmony with the metering departments. Leakage conditions of pipe lines are known and not guessed; and as a result all of the loss and unaccounted-for gas as determined by the meter departments cannot always be justifiably charged to leakage. This leads to discrepancies and these discrepancies to a large extent can be found and remedied. This, of course, results in more efficient operation.

Most of these leakage departments have a very compact method of recording data. Card files are very convenient. These cards, containing all of the leakage data as well as other similar operating data, can be located quickly and are an efficient basis for studying the discrepancy items that occur.

Reconditioning Lines

The systematic reconditioning of lines and the conducting of leakage tests when possible on the different integral parts of a system gradually increases the efficiency of the entire unit and causes a very noticeable reduction of leakage.

While leakage from distribution lines is in a way related to the principles of leakage from high-pressure transmission lines, there are differences that have to be realized in attacking the two problems. In the first place, the method of making a leakage test is of importance. For intermediate systems and with high-pressure distribution, it is possible to use the pressure drop method of testing as recommended for high-pressure transmission. This has been used with success in several of the cities carrying high pressures in their distribution systems. For real low pressures, however, the pressure drop method of testing is not so adaptable. As practiced successfully in many localities, the procedure of testing for the isolation method is as follows: First, the main system is divided into small sections which are tested separately. Long sections can be used for expected low rates of leakage. If the leakage is greater than expected the sections then can be subdivided and the excessive leakage confined to as short a section of line as possible. Eight hundred to 1,000 feet probably represents suitable lengths of sections to choose for testing. All service connections then are shut off and the section under test is completely isolated from the rest of the system. For real low pressures, inflated rubber gas main bags are adaptable for the isolation. For intermediate pressures and high pressures, the isolation has to be secured with blind plates between flanges or some similar effective method. This question of isolation is very important and precautions have to be used to be sure that it is obtained. After being sure that complete isolation is effected, the rate of gas flow measured with a meter into the line that is necessary to maintain a constant pressure in the line is the leakage at that pressure from the line.

The systematic testing of a distribution system usually is of great value. Many times, the greatest portion of the total leakage from a system occurs from only a small part of it, and once the source of this excessive loss is located, it is a more simple matter to eliminate most of it.

The question of connections and joints and the method of installing them are as important to distribution system problems as to transmission system problems. In many cases, these sources of loss were not studied for distribution installations with the result that the systems now allow great loss of gas and it costs much to make the needed repairs. With the present knowledge of the importance of such factors, these sources of loss are being eliminated to a large extent in the initial construction and the other systems are modernized and repaired as time and investments allow.

The ordinary joints used for distribution work are subject to defective workmanship, traffic stresses, settlement, improper blocking and unequal expansion, many of which are not present in studying losses from transmission lines.

The problem of establishing a comparable basis for distribution leakage is more involved than for transmission leakage. The two possibilities are the percentage of gas and the rate of leakage per month per mile of 3-inch line. The percentage of gas is not a true indication for comparing the rates of leakage from two systems since more total gas might be handled by one of the systems. On the other hand, the basis of 3-inch line considers diameter only, which really takes into consideration the comparative effect of joints and does not consider service connections. The Pacific Gas Association, in its last recommendations, considers the problem unsolved but recommends that until a future time when it will be possible to devise a factor that will lead to a true expression of unaccounted-for gas, the unaccounted-for gas shall be reported on 3-inch pipe equivalent basis per month per mile of mains and services.

[2]Williams, Charles E.; What Is Allowable Leakage, The Oil and Gas Journal, August, 29, 1929.

REFINERY OF PURE OIL CO. BEGINS OPERATIONS

(Continued from Page 114)

line and this will reach the refinery within the next week.

The new plant includes three combination Gyro units which will completely top and crack all of the crude. A yield of gasoline approximating 60 per cent of the crude will be recovered directly from the units and the composite gasoline will have an antiknoek value very close to the standard of the Ethyl Gasoline Corp. This gasoline will be marketed as the regular grade and will be augmented with ethyl fluid to be marketed as Pure Oil Ethyl.

R. D. McClaren has been named general superintendent in charge of the new Toledo plant and also the Heath, Ohio, refinery. Mr. McClaren was transferred from the Okmulgee, Okla., refinery of the Pure Oil Co. to take charge of the Heath plant as superintendent, several years ago. He has been supervising the construction work of the new Toledo plant and much of his time has been spent away from Heath. He will retain headquarters in Heath, however.

O. B. Weldeln has been named superintendent of the Toledo plant and E. E. McPherson has succeeded Mr. McClaren as superintendent of the Heath refinery.

W. R. BOROUGH PROMOTED

The Texas Company announces the transfer of W. R. Borough, who has been superintendent of the company's refinery at Sunburst, Mont., for two years, to the Amarillo, Tex., plant where he will be in charge. Mr. Borough was assistant refinery superintendent of the company's Tulsa refinery before moving to Sunburst. He is succeeded at the Sunburst refinery by T. J. Landry, who has been assistant superintendent.

EAST TEXAS "BOOM" BEATS THEM ALL

(Continued from Page 21)

tinued market. More lines scheduled for the field will give it greater outlet and perhaps may handle the increased production as the wells are completed, but it does not seem possible all wells will obtain connections and the wells produced to capacity every day.

Five other lines are scheduled to be constructed into the Joiner Field, one to be a 6 or 8-inch lateral to be constructed by the Gulf Pipe Line Co. from its trunk line system which runs near the field from Oklahoma to the Gulf Coast; one by the Humble Pipe Line Co., an extension of its 8-inch from the Kilgore Field, or another line from the Joiner Field to connect to its line running out of Boggy Creek Pool in Anderson County south to the Gulf Coast; one a 6-inch line to Overton, one by the Taylor Refining Co., a 6-inch line to Tyler where the company is constructing a refinery which will have a capacity of between 8,000 and 10,000 bbls. per day; and another 4 or 6-inch line to a loading rack at Friars Switch. Other small skimming plants have been rumored for Overton, Arp and the Joiner Field, and two more such plants will soon be started, one by J. P. Gillen of Houston, to locate a small plant at Overton, and another plant in Overton by another group of associates, with lines to serve the plants.

To prove that activities in the Joiner area, or this sector of East Central Texas, are running away with themselves, a person has only to notice two wildcat tests, located about 5 miles west of production in the Joiner Field. One of these tests is now drilling and an offset has a derrick up. This is the first time the writer has ever seen a wildcat test offset by another test before the first was hardly spudded, but it is another sign of the fast pace being set in this district. One company owning a small lease in this sector has chartered large buses and is carrying out would-be investors to its location, showing them the derrick, the Joiner Field, and what-have-you, and then serving lunches in the large tent erected near the derrick.

Henderson and Kilgore

Leaving the Joiner Field to continue the trek through the other producing areas in Rusk and Gregg Counties, it is best to drive 6 miles east to Henderson, another humming town. Here business buildings of all description, and many small homes and large apartments, are being erected to accommodate the ever-increasing demand for more room for new business enterprises and steady increase in population.

From Henderson a good road leads north to the town of Kilgore, the boom town of another field which was discovered by Ed W. Bateman on the Mrs. Lou Della Crim farm in the E. G. Sevier Survey on December 28. This field is approximately 3½ miles southwest of the town, but one test drilling 1 mile east of town is almost down to the Woodbine sand, and may extend the pool a distance of 4½ miles, making the pool approximately 5 miles wide from southwest to northeast. And, speaking of Kilgore, Oklahoma City has nothing on it when it comes to drilling on town lots, for at the present time the Smith Drilling Co. has a derrick up only 200 feet off of the main "drag," and immediately in the rear of one of the supply companies' warehouses.

Kilgore has advanced from a "wide place in the road," with a population of around 500 people, to a seething mass of humanity which is estimated at around 8,000 or 10,000 people, who live in tents, shacks, boxcars, automobiles, wagons, supply houses, hastily erected houses and wherever they can find escape from the elements. It is just another oil boom town, changing the whole landscape, appearance and atmosphere of the village to one of hustle and bustle, mud and dust, filth and squalor, loafing and industry.

Freight Congestion

The railroad depot, which formerly saw but few passengers leaving and entering, with but a small amount of freight handled on its docks, is now taxed to the limit, and the small force which once loafed around the office has to work at utmost speed all hours of the day, for practically all oil field supply companies have opened offices, erected and purchased supply houses, or are building same and are shipping in tons of material and equipment every day over the I.&G.N. railroad. Men connected with that road will readily tell you they are not prepared to handle all the business which has been tendered them since the opening up of the Joiner and Kilgore Fields. The company considered placing an embargo on all equipment into these new areas over its road until it constructed numerous sidings at Kilgore, Overton, Longview and Arp and could prepare for the vast volume of business which is flooding the road. Agents of the Cotton Belt railroad, which runs into Tyler, 24 miles to the southwest, are soliciting business from the supply houses at Kilgore, and will get a considerable amount of it, regardless of the fact that the equipment will have to be trucked from Tyler to the latter place.

Unloaded cars sit on the tracks at Kilgore, and a switch engine is busy 24 hours of the day shunting incoming cars and empty cars around on the new tracks which have been hastily built to augment service. It is the first switch engine the town has ever seen working, and gives the loungers plenty to do watching its machinations throughout the daylight hours.

Many supply houses are being constructed on sites along the railroad, and about all available places have been taken for such industries as desire trackage and warehouses on the right of way.

Kilgore has not been backward in its civic duties, although handicapped at the start with such a small village. A chamber of commerce was immediately organized, and the men of the town started to prepare for the boom they knew would follow upon the heels of the discovery well. On February 20 an election was held, and Malcolm Crim, former storekeeper and landowner at Kilgore, was the only candidate for mayor, and two others were named for aldermen, giving the newly incorporated city its first officials. People are coming and going, and every day sees new buildings going up and new changes being made. Standing on the main street, through which the railroad runs, 36 transients could be seen coming in on a "red-ball" fruit train, and approximately that many more were leaving on another freight which was pulling out for the south and Houston. And not all the people are riding freights; the highways are lined with wagons, trucks, cars and all forms of vehicles, many which look as if they are ready to wheeze their last and absorb their final drop of gasoline.

Roads Crowded With Trucks

Many trucks with Oklahoma and New Mexico licenses can be seen along the highways, bringing equipment from fields shut down by proration, as for instance Hobbs and Oklahoma City, and it is these trucks that are being held up by the highway patrolmen and weighed to see if they are overloaded contrary to the state laws of Texas.

Other trucks are passed along the highways, carrying welding and pipe line equipment for the Magnolia Pipe Line Co., which is preparing to lay a 10-inch carrier line from the Kilgore and Farrell-Lathrop Fields to its main line which runs from Arkansas to the Gulf Coast. The lateral will tie into this line at Center in Shelby County, and the survey is completed and work ready to commence on the line.

The Humble Pipe Line Co. has temporarily shut down on the construction of its 8-inch lateral which is supposed to connect the Kilgore Field with the company's 10-inch trunk line from Van to Louisiana, just southwest of Longview, and many conjectures have been made as to the reason.

A traveling hardware store in the town of Kilgore. Notice many cigar boxes which contain bolts, screws, nuts, washers and what-have-you. A purchaser can probably buy anything from a second-hand tooth brush to a patched inner tube from this new merchant of Kilgore.

The Kilgore Pool came in about six weeks after the Joiner discovery and the purchase of the Bateman 1,440-acre block by the Humble Oil & Refining Co. has aided materially in retarding the progress of drilling in the pool, but at present there are around 20 rigs running or standing ready to be rigged up, with many more locations staked.

During the week two wells extended the Kilgore Field in opposite directions, E. M. Jones extending it approximately one-half mile to the south on the Crim farm, and the Smith No. 1 Peterson extending it a mile to the northeast. George McCamey's test, 1 mile east of Kilgore, is the most interesting in this area due to the fact that it is about down to the Woodbine, and will mean a 3½-mile extension to production, or will limit production in that direction.

The Kilgore Field is also encompassed by mud holes, mule teams and tractors playing a most important part in the development, and any field in East Texas may be expected to give the same trouble due to poor drainage, and the character of the soil. One contractor said that activities would not stop in these fields; he never had seen activities stopped in any field, but that he expected them to be mighty slow in the wet season.

Longview's Field

Longview, county seat of Gregg County, is approximately 7 miles from the Farrell and others' No. 1 Lathrop discovery in the William Robinson Survey, which is in turn approximately 13 miles north of the Bateman discovery near Kilgore. The Farrell-Lathrop well was brought in three weeks after the former discovery, and opened the possibility of one continuous pool from the Joiner area 23 miles to the south. Several wells are now drilling between the three widely separated producing areas, but they will be completed within the next three weeks, and the industry will then know whether this sector of the East Central Texas district is to have the largest producing field in the world or whether the three areas will be separated by dry holes.

Longview, too, is witnessing the greatest expansion in its history. New industries are coming in, new buildings of all kinds are going up, new homes and apartments being built to house the ever increasing population, and all the citizens are helping in an effort to handle the new situation. Being located on the main line of the Texas & Pacific Railroad and on a transcontinental highway has added to the influx of people to Longview, the majority seeking work, or only transients hoping to pick up a few easy dollars, or merely to see what is taking place.

Several of the major companies and supply houses have opened offices in Longview, although the majority of production camps of the major companies will be on their leases near Kilgore, the Shell Petroleum Corp., Humble Oil & Refining Co. and others already constructing camps near this place.

Skimming Plants

The East Texas Refining Co. is preparing to construct a 6,000-bbl. skimming plant in Longview and has already completed survey for 7 miles of 4-inch line from the Farrell-Lathrop area to this plant. One 6-inch line is now serving the discovery well, carrying the oil to a loading rack on the Texas & Pacific Railroad near Willow Springs from which it is hauled to the Louisiana Oil & Refining Co.'s refinery at Shreveport. It has repeatedly been stated that the Arkansas Fuel Oil Co., part owner of the discovery well, and owner of a large block around it, would lay an 8 or 6-inch line to Shreveport, but this will probably be abandoned for the present due to the railroad having agreed to carry the oil at a much lower rate than heretofore, and meeting the pipe line competition.

Another skimming plant has been reported for Longview to be served by another small line from the field, and the Magnolia Pipe Line Co. will lay a lateral from the field to its pumping station which is to be located approximately midway between the Farrell-Lathrop and Kilgore Pools, north of the river. Oil can be gravitated from both fields to this station where it will be pumped southeast to center station in Shelby County. The company will perform common carrier service for operators in both fields, and will also serve its own leases which may prove productive.

Present Operations

Mammie Hammon's No. 1 Hamby in the Martin Lant Survey, 4 miles northeast of the Gregg County discovery, is a most interesting test due to its being near a crucial depth, and spelling an extension or limiting of this new field which has not reached the active stages of the Kilgore or Joiner Fields because of its later discovery, and also because of the large block which the Arkansas Fuel Oil Co., Farrell and associates hold around the well, thereby curtailing drilling to a great degree. Farrell and associates are reported on a deal to sell their holdings to one of the major producing companies, and it is generally believed the Arkansas Fuel Oil Co. will be the purchaser. This would give that company approximately 6,000 acres around the well, the largest producing block in East Central Texas to be held by one company.

Proration has not yet been put into effect in any of these three new areas, and it is doubtful when and how it will be levied as many operators and people in the district are strongly opposed to it. the Kilgore and Joiner Fields being cut up into many small tracts not easily adaptable to proration. A committee of 20 has been appointed to study the fields and possible proration for them, but it is not believed anything will be done before April 1 when the Railroad Commission holds a general proration meeting at Austin. However, the committee of 20 will meet before March 1 to discuss proration, and if it is agreeable with all members of this committee, some form of proration may be recommended to the Railroad Commission, and put into effect by that organization.

Watching activities in the three areas, seeing new lines and refineries going into

the fields, many desiring to purchase crude from the operators and not being able to do so, the low price of the crude from the fields, and many not in favor of proration, all tend to make the bystander, and many of the operators believe that proration cannot be enforced in the fields until lack of market demand or pipe line outlet causes the wells to be shut in as they are completed.

The boom is growing greater every day, and looks as if it would continue for at least six months, with the lease play now swinging to the south and southeast into Nacogdoches County, with possibilities of opening up one or more pools in that county by some of the many wildcats drilling in that area.

WIDE OPEN OPERATIONS SHOWN IN RUMANIA

By Richard Airey

NEW YORK, Feb. 21.—That the petroleum industry is a clear cut example of unrestrained production, unrestrained refinery operations and no market for output is shown by the present condition in Rumania. The following is from today's Wall Street Journal:

"Following a breakdown in the restriction agreement among oil producers Rumania oil prices have been reduced over 50 per cent and are well below the United States Gulf Coast export levels. The best gasoline is selling at Port Constanza at 3½ cents a gallon of which 1½ cents represents freight cost from refineries. Storage amounts to 213,000 tons (about 2,064,000 bbls.) compared with 132,000 tons (about 1,131,000 bbls.) a year ago and all tankage reservoirs are filled. All companies in Rumania are losing money with 1930 crude oil production in the country 18 per cent over 1929 and still high."

The price mentioned is equivalent to 2 cents per gallon f.o.b. refinery Oklahoma.

In Russia where the government is starving its own citizens in order to export there is a shortage of kerosene. The authorities in Moscow have issued an order regulating the supply of kerosene and have ordered the police to search private houses in order to ascertain if unreasonable quantities are kept; all families having more than 8 liters will be prosecuted.

In Rumania the Royal Dutch-Shell is continuing its efforts to renew the proration agreement which expired in December but so long as the Russian government starves its own people in order to export the position appears hopeless.

RECENT APPOINTMENTS AT MELLON INSTITUTE

Dr. Edward R. Weidlein, director of Mellon Institute of Industrial Research, Pittsburgh, Pa., has announced the appointment of Dr. Leonard Harrison Cretcher to an assistant directorship in the institution. Doctor Cretcher, who, since 1926, has been serving as head of the institute's department of research in pure chemistry, is a specialist in organic chemistry and will have supervisory charge of a group of industrial fellowships that are concerned with problems in organo-chemical technology.

In addition to serving in this positional capacity, Doctor Cretcher will continue as directional head of the department of research in pure chemistry. In this work he will be aided by Dr. William L. Nelson, who has been made senior fellow in pure research. Beside Doctors Cretcher and Nelson, the departmental staff will include Dr. C. L. Butler and Dr. Alice G. Renfrew, who has just come to Mellon Institute from the Sterling Chemical Laboratory of Yale University.

Doctor Cretcher has been a member of Mellon Institute since 1922, when he was appointed senior fellow in pure research. In 1926 he became the head of the department with additional facilities and assistants for research. He was born in Degraff, Ohio, on July 25, 1888. After graduating at the University of Michigan in 1912, he taught there and at the University of Tennessee, and then pursued advanced study at Yale, from which institution he received his Ph.D. in 1916. He was next a member of the organo-chemical division of Rockefeller Institute for two years. In 1919 he decided to enter the field of industrial research and was appointed to an investigational position in the laboratory of the National Aniline & Chemical Co. During the World War he was a captain in the Chemical Warfare Service, A.E.F., stationed at the Puteaux Laboratory.

Doctor Cretcher is best known for his published researches in the domain of sugar chemistry. He has also contributed to the knowledge of pyrimidine aldehydes, oxidation of tertiary hydrocarbons, glycol ethers and esters, organic boron compounds, barbituric acids, chloro ethers, and equilibria in binary liquids systems.

Doctor Nelson was appointed a fellow in pure chemistry at Mellon Institute in 1926, immediately after the completion of his graduate work at the University of Pittsburgh. He served in the department of pure research until last fall, when he became the incumbent of an industrial fellowship on fatty acids. In his new post he will return to the field of purely scientific chemical investigation.

Dr. Lawrence Wade Bass, who, for two years, has been a member of the executive staff of Mellon Institute of Industrial Research, Pittsburgh, Pa., has resigned, effective February 1, to accept the post of assistant director of research of the Borden Co., New York, N. Y.

Late Fields

(Continued from Page 32)

Magnolia Petroleum Co.'s No. 2 Vickers, SW cor., Section 17-27-2, in the northeast edge of the Eastborough Pool, Sedgwick County, had the chat at 2,942-49 feet where the oil rose 2,000 feet in the hole and it was estimated at 200 bbls. a day, from the present depth.

OKLAHOMA

Johnson and Dabney's No. 1 Patton, NW cor. SE NE, Section 10-11-3w, Oklahoma City Field, flowed 8,502 bbls. of oil in three hours, and 29,000,000 feet of gas a day. The production was found in the Wilcox sand at 6,295-6,385 feet.

W. H. Smith's No. 1 McCarty, SE cor. NW NE, Section 18-4s-8w, Jefferson County, is a wildcat location recently announced. The test is in the vicinity of a number of other wells which found showings of oil at 21 feet.

In the D.L.T. Pool, northwest of Muskogee, which has been inactive for the last six months, two wells were completed during the last few days. Jolly Oil Corp.'s No. 2 Rentie, SE cor. SW SW NW, Section 9-15-18, was completed for 4,000,000 feet of gas in the Wilcox sand at 1,593-98 feet. The well offsets a dry hole drilled during the early development of the pool. The other well was on the south edge of the pool, and was the D. L. T. Co. and Wachob's No. 2 Mackey, SW cor. E half SW SW, Section 9-15-18, which is estimated at 25 bbls. from the sand at a total depth of 1,007 feet.

Blackwell Oil & Gas Co. and Jones Drilling Co.'s No. 1 Page, NE cor. NW SE, Section 35-12-3w, made 1,470 bbls. of oil in four hours and the gas was estimated at 10,000,000 feet a day. The oil and gas was found in the Johnson sand at 6,410-52 feet.

Strapp and King's No. 1 Earlsboro Townsite, SW cor. NW, Section 8-9-5, has been completed for 250 bbls. of oil from the Wilcox sand at 4,337-51 feet.

Amerada Petroleum Corp.'s No. 4 Tiger, NW cor. SE SW, Section 3-8-5, Carr City Pool, swabbed 35 bbls. of oil after plugging back from a total depth of 4,157 feet. The well was shot from 3,898-3,926 feet with 40 quarts and 80 quarts.

Sunray Oil Co.'s No. 10 Ritchie, SE cor. NE NE, Section 12-4-7, Pontotoc County, was completed for 547 bbls. of oil after a 5 and 10-quart shot.

Deep Rock Oil & Refining Co.'s No. 3 Douglass (60 acres), NE cor. SW. Section 30-8-8, in the Wewoka Townsite Pool, was completed for 4,820 bbls. of oil after being plugged back from a total depth of 3,300 feet. The oil was found in the Cromwell sand at 3,220-50 feet. Same company's No. 2 Douglass (10 acres), NE cor. SW NE, Section 30-8-8, will be put to pumping as the well does not flow. The total depth of the well is 4,052 feet in Wilcox sand.

Pace Petroleum Co.'s No. 1 Townsite, SW cor. SE NE, Section 30-8-8, drilled the cement plugs at 3,318 feet and swabbed 10 bbls. of oil and 8 bbls. of water in 24 hours.

RISINGER HEADS SAFETY GROUP

HOUSTON, Tex., Feb. 23.—J. L. Risinger, safety director of the Magnolia Petroleum Co., Beaumont, Tex., has been elected president of the Gulf Coast chapter of the Petroleum Safety Council. He succeeds R. B. Roaper of the Humble Oil & Refining Co. Other officers elected are H. S. Stapleton, Vacuum Oil Co., Lake Charles, La., vice president, and P. E. Keegan (re-elected), Shell Petroleum Corp., Houston, secretary-treasurer.

NEW ISO-VIS HEAVY ADDED

Standard Oil Co. of Indiana has announced the addition of an extra heavy grade lubricating oil to its list of Iso-Vis motor oils. The base has an S.A.E. No. 70 viscosity, whereas the heaviest oil previously marketed was a special heavy of S.A.E. No. 60 viscosity. The new oil is recommended by the company where an unusually heavy oil is indicated in gasoline burning crankcase lubricated engines.

CRAWLER TRACTOR LAYING LINE NEAR SHREVEPORT, LA.

This picture shows a Model GU (heavy-duty) Trackson Allis-Chalmers unit, equipped with a W-K-M side winch and boom at work on the 10-inch pipe line of the Standard Oil Co. of Louisiana.

NEW INSURANCE PLAN FOR SOCONY EMPLOYES

NEW YORK, Feb. 21.—Employes of the Standard Oil Co. of New York, to the number of approximately 45,000, will benefit by a pension and insurance plan which will be administered by an insurance company, Herbert L. Pratt, chairman of the board, announces. The plan, which is retroactive to January 1, 1931, is one of the most ambitious of its kind ever undertaken by a private corporation, and will involve the expenditure of several millions of dollars annually.

According to the new plan, men will be retired at the age of 65 and women at the age of 55, with some exceptions to cover terms of long service, on pensions of approximately 2 per cent of their average previous salary, multiplied by the number of years spent in the company's service. Under the plan, a man who retires after 30 years will receive a pension of at least 60 per cent of his previous pay.

Death and disability pensions, independent of the pension allowance, are included in the plan, with the company and the employes sharing the expense of the premiums, the workers paying in proportion to their salaries. The new plan, Mr. Pratt declared, will replace the self-administered plan of pensions and allowance for employes which the company has hitherto followed.

The new plan makes the pension relations between the corporation and the employes contractual, rendering the retirement benefits irrevocable. Employes are given the option of participating in the plan, with the provision that a share in the benefits shall not affect workers' rights under the workmen's compensation laws.

Standard Oil Co. of New York reserves the right to discontinue the plan at any time in the future, but one provision of the agreement with the insurance company is that if the plan is canceled, all annuities purchased for employes up to that time shall remain in force.

The exact amounts of the death benefits were not announced, but Mr. Pratt stated they would approximate a year's salary. Another provision of the plan protects employes against loss as a result of accidental injury or permanent disability. The death benefits are in effect life insurance which the employes receive without the formality of taking out a policy, but in connection with which he has certain rights by naming and changing the beneficiary and receiving a cash surrender value based on the amount he has paid under the rules of the plan.

The new plan also includes employes of subsidiary companies, including Magnolia Petroleum Co., General Petroleum Corp., and White Eagle Oil & Refining Co.

CHARLES HEVENOR DEAD

Charles Hevenor, age 63 years, oil producer in the Tulsa district since 1907, died at his home in Tulsa on Tuesday, February 24, after a 10 days' illness. Mr. Hevenor was also well known as a lease buyer for leading Mid-Continent companies. He came to Oklahoma from Salamanca, N. Y.

MARKETERS NAME ATCHINSON

The Oklahoma Petroleum Marketers Association has created the office of manager in the association, installing J. R. Atchinson of Oklahoma City in this place. Mr. Atchinson has been engaged in the marketing branch of the industry for a number of years.

R. D. ALLEN DEAD

Robert D. Allen, who represented the William Powell Co., Cincinnati, Ohio, valve manufacturer, died recently in Houston, Tex. "Bob" Allen was a pioneer valve salesman in the South and Southwest and his genial personality won him many friends.

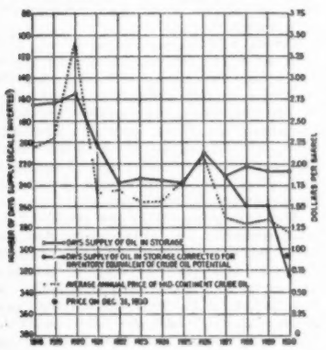
ECONOMICS OF THE CRUDE OIL POTENTIAL

(Continued from Page 25)

unfavorable effect upon the market structure.

Correlation of Inventory With Price

Commodities in general show a high degree of inverse correlation between price and inventories, especially if inventories are related to consumption through the device of expressing inventories in number of day's supply. Table 5 and Figure 1 show this correlation for petroleum, the two series chosen for comparison being stocks of all oil and the average price of Mid-Continent crude oil (33.0-38.9 gravity). In Table 5 the data and calculations are presented, while in Figure 1 the correlation is shown graphically. For convenience of visualization, the inventory is plotted on an inverted scale in Figure 1 in order that the two series may be directly compared. (Technically, this device changes an inverse correlation into a direct correlation.) The correlation is presented in two


NUMBER OF DAYS SUPPLY (SCALE INVERTED)
DOLLARS PER BARREL
DAYS SUPPLY OF OIL IN STORAGE
DAYS SUPPLY OF OIL IN STORAGE CORRECTED FOR INVENTORY EQUIVALENT OF CRUDE OIL POTENTIAL
AVERAGE ANNUAL PRICE OF MID-CONTINENT CRUDE OIL
PRICE ON DEC. 31, 1930

stages: (a) The relation between price and aboveground inventories; and (b) the relation between price and aboveground inventories corrected (in 1928, 1929 and 1930) for the inventory-equivalent of the shutin potential.

Figure 1 reveals that for the period 1918-1927 a high degree of correlation exists between price and aboveground inventories. This relationship, however, does not hold for the past three years, 1928-1930, price declining far below the levels indicated by the aboveground inventory series. If, however, we correct the aboveground inventories for 1928-1930 by adding the inventory-equivalent of the shutin potential, the correlation resumes and the normal price-inventory relationship obtains. This correlation study is believed to demonstrate that the shut-in potential is a semi-inventory and as such exerts a normal adverse effect upon the price structure. In no other way can the crude oil price level in 1928-1930 be satisfactorily explained. Were the potential without economic effect, the price of average Mid-Continent crude would today be between $1.50 and $1.75 per barrel, instead of $0.93 per barrel.

Further Economic Considerations

From the data here presented it may be calculated that if all drilling ceased our potential would be sufficient to maintain the supply of crude petroleum in overall balance with demand for approximately 28 months. At the end of this period, a price of $1.75 for Mid-Continent crude oil would be indicated. Under subnormal drilling (i.e., with an annual initial of 2,500,000 bbls), 50 months would be required to eliminate the crude oil potential. As complete cessation of drilling is not practicable, it follows that the petroleum industry must be prepared to endure low crude oil prices until the potential can be substantially reduced. Unfortunately the potential is still increasing and it seems imperative that efforts be directed toward reversing this unfavorable trend, else still lower prices may be called forth to halt this movement.

This study indicates clearly that if the purpose of curtailment of production in the petroleum industry was to maintain a satisfactory price, the technique developed was faulty because it did not really control production in an economic sense, but permitted the inventory position of oil to become progressively more adverse. Contrariwise, it follows that if artificial stabilization in the petroleum industry is to succeed, control must be exercised over the potential to the end that this factor may, first, be stopped from increasing and, second, be gradually reduced.

The adverse economic effect of the potential may be minimized either by reducing the potential or by increasing the proportion of the potential that is under unit, rather than competitive, influences. The potential itself is not homogeneous but divides into two portions—the unitized and the competitive—which have unequal economic weights. This aspect of the problem is involved and can be only lightly touched on in this place.

It follows that if the principles outlined in this paper are correct, the industry can obtain a remunerative price level for crude oil only by reducing the corrected inventory. The reduction of aboveground inventories will not alone suffice, as adequately proven by the events of 1930; the combined inventory (aboveground and potential) must be lowered. The combined inventory at the close of 1930 represented 322 days' supply, with price at $0.93 per barrel. If a price level of $1.50 is desired, combined inventories must be reduced to 225 days' supply, or approximately one-third. Any methods for stabilizing the crude oil situation that do not involve a reduction in combined inventories would appear to fall short of a fundamental approach to the problem.

Conclusions

(a) The shutin crude oil potential is the summation of the surplus initial production brought in during the past three years.

(b) The potential has the economic effect of an inventory, the effect being approximately one-half that of the potential converted into actual production.

(c) The price of crude oil correlates with aboveground inventories corrected by adding thereto the inventory equivalent of the potential.

(d) If all drilling ceased, the potential would be sufficient to maintain crude oil production in balance with demand for 28 months.

(e) If all restrictions were removed and the oil could be physically handled, the crude petroleum output of the United States in 1931 would be 1,500,000,000 bbls. In such event, the price of Mid-Continent crude oil would have an indicated decline to 10 cents per barrel.

(f) The crude oil potential is still increasing, thus exerting pressure on crude oil markets.

(g) If a higher crude oil price level is desired by the petroleum industry, some method of reducing the crude oil potential must be found.

(h) The methods of control thus far practiced in the petroleum industry are faulty to the extent that they may have permitted the potential to increase.

(i) Any methods for stabilizing the petroleum industry that do not involve a reduction in the economic effect of the combined inventory are not fundamental and cannot be counted on to succeed.

TABLE 5—CORRELATION OF PRICE OF CRUDE OIL WITH THE INVENTORY OF ALL OIL EXPRESSED IN DAY'S SUPPLY AND CORRECTED IN 1928, 1929 AND 1930 FOR THE INVENTORY EQUIVALENT OF THE CRUDE OIL POTENTIAL

Year—	1 Consumption of all oil (million bbls.)	2 Inventory of all oil in U. S. (million bbls.)	3 Inventory expressed in number of day's supply	4 Inventory equivalent of crude oil potential (million bbls.)	5 Corrected inventory (Cols. 2 and 4) (million bbls.)	6 Corrected inventory expressed in number of day's supply	7 Average price Mid-Cont. crude oil $per bbl.
1918	427	193	165	.....	193	165	2.19
1919	438	197	164	.....	197	164	2.29
1920	535	227	155	.....	227	155	3.41
1921	538	294	203	.....	294	203	1.65
1922	605	396	239	.....	396	239	1.68
1923	754	485	234	.....	485	234	1.56
1924	805	520	236	.....	520	236	1.57
1925	841	550	238	.....	550	238	1.79
1926	913	536	210	.....	536	210	2.09
1927	944	597	232	.....	597	232	1.37
1928	1,015	620	223	104.0	724	260	1.30
1929	1,103	689	238	98.5	788	260	1.35
1930	1,080	666	237	287.0	953	322	*1.32

*Price December 31, 1930—93 cents per barrel.

TINSWOOD SLACK DIES

CHATHAM, Ontario, Feb. 20.—Tinswood Slack died recently at Petrolia, Ontario, in his eighty-fifth year. He was for a number of years a well-known oil driller, and later engaged in the Petrolia-Enniskillen Field. Augustus M. Slack of Calgary is a son.

ELECT BEECHER CHAIRMAN PETROLEUM DIV., A.I.M.E.

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chairman, brought out a large attendance. Papers presented at this session dealt with "Petroleum Research and Educational Facilities in Great Britain," by Ernest R. Lilley; "Permeability Studies of Pennsylvania Oil Sands," by Charles R. Fettke and W. A. Copeland; "Methods and Effects of Unit Repressuring in the Cook Pool," by G. P. Crutchfield; "A Study of the Production Curves for the 8,500-Foot Horizon in the Big Lake Oil Field, Reagan County, Texas," by Kenneth S. Ritchie; "Experimental Measurement of Slippage in Flow Through Vertical Pipes," by T. V. Moore and H. W. Wilde, Jr.; "Practical Interpretation of Core Analysis," by L. S. Panyity; "Problem of Proration on Basis of Gas Energy," by Eugene A. Stephenson, and a "Preliminary Report on an Investigation of the Bureau of

C. E. Beecher

Mines Regarding the Solubility of Natural Gas in Crude Oil," by Ben E. Lindsly.

Wednesday's session of the petroleum group was given over to a symposium of the production situation, the morning gathering taking up domestic fields and the afternoon session discussing the situation in foreign fields.

Unit operation and petroleum economics featured the closing session on Thursday, followed by the petroleum division dinner at the Engineers Club at 6:15 and the final business session, a general meeting, at 8:15 on the same evening.

Unit Operation

The status of unit operation has changed during the past year, and today it is only one of several remedies vigorously advocated, said Earl Oliver, of Ponca City, Okla. "Proration, regulation of imports, unit operation, constructive marketing, and interstate compacts, all have their earnest proponents and the advocates of each have been disposed to look with scorn and indifference on the other proposals, to the end that none of them have had united support," he said. "Meanwhile, the industry has rapidly drifted toward a serious crisis, the imminence of which may in itself bring the solution. The gravity of the situation tends to force study of the merits of proposals that a short time previously were brushed aside as impractical—and to the surprise of most of us, we find merit where we previously thought none existed.

"Your committee has decided it can most effectively promote unit operation by finding what is the relative place of unit operation in the major program of which it forms a part, and how it should be related to other portions of the same program, and also by developing an understanding of the due process of law by which it can be legally established as an effective practice in oil field development."

An interesting discussion on "What a Petroleum Engineer Does" was presented by Thomas W. Moore, while J. French Robinson delivered a similar talk on "What a Petroleum and Natural Gas Engineer Does."

Bar Association View

Closer co-operation between the petroleum industry and the bar was advocated by Peter Q. Nyce, of Long, Chamberlain & Nyce, and secretary of the Mineral Section of the American Bar Association. The joint services of the engineer and the lawyer must necessarily be required in solving many of the problems of the industry, he said, continuing: "The petroleum engineers and lawyers must become better acquainted with the subject matter about what each must know. The engineer must learn that political laws are changeable and that the construction of such laws by courts change with changing conditions. The lawyer must learn that physical and economic laws are not changeable. The Mineral Section of the American Bar Association has been addressed by engineers at some of its meetings. The appearance of lawyers before your body convinces me that you are following the same course. We are mutually educating each other by such appearances. The result must necessarily be most wholesome in helping to solve our joint problems."

Refining Progress

Gasoline produced through hydrogenation has exceptional antiknock characteristics, said H. W. Camp of Tulsa, manager of refineries for Empire Gas & Fuel Co., speaking at the final session of the meeting. Mr. Camp predicted the refinery of the future as a plant embodying all of the principal processes now known to the industry. "It is not at all unlikely to expect that a plant could be designed with balanced skimming, cracking and hydrogenation facilities to manufacture from the crude oil whatever products are most desirable and in whatever percentages they are desired," he said.

"Considerable activity has been shown in the field of vapor phase cracking, with the development of several new types of units," Mr. Camp said. "The production of a product with a high antiknock value makes the vapor phase process particularly attractive.

"Cracking equipment has shown a marked advance with the development of corrosion-resisting alloys. Nickel, chromium and vanadium have shown interesting possibilities, but as yet are quite expensive. The use of ceramic material for lining reaction chambers has been widely accepted for reducing corrosion. There is a great deal of controversy as to whether chemical treatment of charging stock is more or less economical than the use of corrosion-resisting alloys. Certainly the greatest future lies in the development of the metallic alloys, since no hope of improvement is apparent by chemical treatment alone."

Russian Situation

An interesting summary of the Russian petroleum situation was presented by Basil B. Zavoico, consulting geologist of Tulsa. "The oil industry in the Soviet Union closed the 1929-30 operating year fulfilling its assigned program," he said. "In the same period of time, however, no basic improvements have been noted within the industry. A careful study of the conditions indicates that disorganization

in most branches continuously increased, that supply and transportation are approaching a state of breakdown, that labor problems become increasingly difficult, and that the estimates for 1931-1933 period are excessive.

"The production of all Russian fields increased by 27,200,000 bbls., as compared with 1928-29 operating year, while the next year's program anticipates a further increase of 46,000,000 bbls., and the 1933 plans call for an amazing total of 330,000,000 bbls., or over 150 per cent more than the production of the operating year just closed.

"During 1929-30, 107,000,000 bbls. were run to refineries, 86.3 per cent of total production, as compared with 77,500,000 bbls. in the preceding year. The 1931 plan anticipates an increase in total runs to 162,000,000 bbls., or 91.4 per cent of planned production.

"Gasoline recovery showed some improvement in Grozny, reaching 19.4 per cent of total runs, but it decreased in Baku to 5.1 per cent, due to underproduction of light Surakany crude; kerosene recoveries were 24.8 per cent in Baku and 18.7 per cent in Grozny. An insignificant amount of gasoline was produced by cracking in the past year, though officially several units were completed early in the year; it is reported that considerable difficulties are continuously encountered after construction of cracking stills, and that their work so far is not satisfactory because local staffs are as yet unfamiliar with the process."

UNIT OPERATION AT KETTLEMAN HILLS FIELD

(Continued from Page 26)

is now producing at the rate of 5,500 bbls. of 42 gravity oil and 5,504,000 feet of gas, with a gasoline content of 1.46 gallons. Hence, as a source of gasoline, 1 bbl. of the "heavy" Kettleman Hills crude equals more than 2 bbls. of southern California crude.

Could Increase Output Quickly

No difficulty will be experienced in segregating the light oil from the heavy oil as no intervening waters occur. In the field there have already been drilled 10 wells in which perforated oil strings have been landed and 23 wells in which the water strings have been landed where penetration of the Temblor formation varies from 13 to 998 feet. These open hole wells have a cement plug at the shoe of the water string and are in condition for immediate deepening to the heavier oil. They could readily be placed on production within 60 to 90 days and should be able to produce from 5,000 to 10,000 bbls. per well. As they are distributed throughout the 22,000 acres of the field, each would have a large drainage area and would undoubtedly maintain a steady flow with little decline for the next year. The present eight producing wells in the field are now making 27,310 bbls. per day. Twelve wells are drilling at proven locations. Under competitive development the field could easily produce 175,000 bbls. per day within the next 90 days. This would be equivalent, as a source of gasoline, to 350,000 bbls. of southern California crude. Present production of the State is a little in excess of 525,000 bbls. per day. Such figures represent only what might happen in 90 days of competitive development work. What might happen after a year or two of competitive development work may well be imagined.

Until the heavier oil was discovered, it was felt that the California gas law furnished a means of regulating the production of this field by limiting the production of natural gas to market outlets. With the development of a gas-oil ratio of as little as 1,000 feet of gas per barrel of oil in Petroleum Securities' No. 2 Felix and an assured gas outlet of from 100,000,000 to more than 150,000,000 feet of gas, it is obvious that the Kettleman Hills would not be sufficiently regulated by the operation of the gas law, and that it could have become a serious menace to the oil industry of the State and the country unless a method of regulation for its development had been successfully worked out. Except for the danger spots surrounding the fee lands which are neither controlled by the association nor the Standard Oil Co., the Kettleman Hills situation may be regarded as having been brought in hand by the formation of the Kettleman North Dome Association. Intelligent, rational development of this field may now be expected at a minimum of expense and a maximum of recovery so far, at least, as the lands of the association and the Standard Oil Co. are concerned.

Acreage Included

Producing and drilling wells in the Kettleman Hills and the limits of the area containing the checkerboard acreage of the Standard Oil Co. and the Kettleman North Dome Association are shown on the accompanying map. On this map are shown two heavy lines, an outer and so-called "blue" line and an inner or so-called "red" line. The NE and the SW of Section 29-21s-17e and land in the W half of Section 35 and all of Section 36 embrace the land that either will not be or may not be included in the Kettleman North Dome Association.

Land within the blue or outer line is divided as follows:

	Acres	Acres
Standard Oil Co. fee land		9,460
Association land—		
Government leases	9,640	
Fee lands—leases between and lands owned by oil companies	1,160	10,800
Total land in two units		20,260
Fee lands of operators willing to enter association but lacking lessors consent		410
Fee land leases not signed up to join association		530
Total		21,200

Considering the fact that the limits of the field are still unknown while its central portion is definitely proven productive oil land on a well-defined structure, and the divergence of interests that such a situation made in establishing the outer limits of the area to be embraced in the unit and in setting up a basis of participation, the formation of the Kettleman North Dome Association represents an important development in unit operation, as well as evidence of a willingness to co-operate upon the part of the operating oil companies, the Federal Government and the oil companies owning fee land.

Co-operation of Standard

Some of these companies have placed practically all of their resources in California in the association. Consequently, they have naturally regarded with fear the possibility that since the Kettleman Hills could be so well controlled, if it became a near-unit operation, its production would be regulated to the advantage of other producing areas in the State. In this regard they had considerable justification for a doubting attitude since many of the wells capable of producing in the field had already been completely shut in for more than a year because of the agreement of July 25, 1929, between Secretary Wilbur and the holders of government permits. Such agreement was only workable because of the co-operation of the Standard Oil Co. which regulated its corresponding offset wells in harmony with the spirit of that agreement.

In lieu of a production test to demonstrate the discovery necessary to validate the government leases, the agreement of July 25, 1929, provided that the wells should be deemed completed when a water shut-off was secured and the Temblor zone encountered. As compensation for those wells shut down, the agreement of July 25, 1929, provided that the three offset wells to Milham Exploration Co.'s No. 1 Elliott, the discovery well, should contribute from 10 to 25 per cent of their production to the owners of all wells in the North Dome area completed in the manner provided in the agreement, on the basis of an equal portion of such percentage to each of said completed wells, exclusive of the four wells making the contribution: viz., the discovery well, Continental Oil Co.'s No. 12-8 and Standard's wells, No. 1P-8 and No. 11P-81. The first of such payments was made for the month of November, 1929, on the basis of 10 per cent of the production of these four wells. Later on the contribution was increased to 25 per cent, but even so the distribution to the wells that were shut down decreased rapidly on account of the number of wells thus completed. At the present time there are 25 wells participating in such distribution.

Even more stringent in its requirements was the provision of the agreement that practically all other drilling activities except those necessary to establish discovery should be suspended until after July 31, 1931. Operators on government lands entered into this agreement of July 25, 1929, "in line with the Government's policy of oil conservation" and for the purpose of contributing to that end perhaps more than for the purpose of curtailing the production of the field.

This agreement of July 25, 1929, has served a most admirable purpose in keeping the greater part of the field in a state of suspended operation while the Kettleman North Dome Association plan was developed and until it is put into effect. Dr. George Otis Smith, as the personal representative of Secretary Wilbur, negotiated this agreement with patience and great tact during the spring and summer of 1929.

Provisions of Agreement

One of the provisions of the agreement required that the parties interested in the Kettleman Hills Field should undertake "to consider a plan of unit development or other co-operative method of developing this great structure with a maximum production and utilization and a minimum of operating cost," and in turn, the secretary agreed to "propose the necessary legislation enabling the Government's participation in the proposed co-operative plan by authorizing both the necessary acreage involved and the substitution of a fixed and definite share in the output in lieu of the existing different rates of royalty for primary and secondary leases."

Beginning on December 11, 1929, meetings were held to comply with the requirements of the agreement. As a result of the first few meetings, one could hardly feel that any particular forward steps were being made. Nevertheless, engineering committees were appointed to prepare plans on unit operations and plans for co-operative development. These reports were submitted in January of 1930 and Secretary Wilbur met with the Kettleman Hills operators in the latter part of that month.

On February 12, to further advance the work, the operating companies in the field organized the Kettleman North Dome committee, with William Reinhardt of the Shell Oil Co. as chairman. To him much credit is due for his patience and persistence in advancing the work of the committee to its final conclusion, for at many times almost insurmountable problems developed.

Before the reports of the engineering committees were submitted there was no outstanding advocate for unit operation but there were several advocates for a co-operative development plan, since that was recognized as being essential. Operating companies were requested to file briefs or comments on the two plans, indicating their suggestions for needed changes to meet their viewpoint and their individual situations.

On April 30 Doctor Smith met with the committee to discuss the legislation necessary to accomplish the purposes of a plan of unit operation, for by that time sentiment in favor of unit operation had crystallized to such an extent that the idea of co-operative development was advocated less strongly. At this conference it developed that the leasing act should be changed in four ways, viz.:

1. To permit co-operation within a single pool so that an operator could have an interest in more than 2,560 acres of land.

2. Modify the royalty on the "B" leases so that they should be fixed amounts and not dependent upon time or rate of drilling or location of wells.

3. Modify drilling requirements so as

SAYS NEW POOLS IN EAST TEXAS SHOULD BE OPERATED LIKE VAN

NEW YORK, Feb. 23.—The Van Pool of East Central Texas is cited by Standard Oil Co. (New Jersey) as a fitting model after which to pattern development of the new production recently developed in Rusk and Gregg Counties in East Texas, in an article in the forthcoming issue of "The Lamp."

"While the oil industry has been bending every effort to hold back a flood of overproduction through co-operative proration measures, a new conservation problem of undetermined size has recently arisen," says The Lamp. "It is a new field of apparently great potential production which may be a single producing area of three pools closely connected, and it lies in Rusk and Gregg Counties in East Texas.

"How large this newest discovery will prove in area and in potential production cannot be predicted with any certainty until more drilling has been done, but enough is already known to offer serious threat to the existing price and proration situation. Some engineers estimate that at least a billion barrels of oil can be taken from this field. The present outlet is only about 15,000 bbls. daily, but its estimated potential is many times that. Along a line of 30 miles three wells have been drilled to about 3,640 feet and are rated respectively as being good for 10,000, 17,000 and 21,000 bbls. daily. Altogether, 22 wells have been completed. 4 of them dry holes and 18 producing. There are now more than 50 rigs and wells drilling. In the next six weeks it is expected that at least 25 to 30 wells will be completed and that these may bring the potential figures up to 200,000 bbls. of oil a day. It is probable that the actual production will be but a fraction of that because of the lack of purchasers and outlets. Four or five major pipe line companies are in a position to lay short branch lines into the area if they desire to take the oil.

"The saner operators in the new field realize that if their production is uncontrolled they will break their own market wide open, and quickly exhaust the valuable gas pressure. They would like to see proration measures similar to those in force in other parts of Texas. The fact that many of the leases are small and are owned by those wishing for immediate and complete exploitation of the field will no doubt add to the troubles of friends of orderly, restrained development. If control is not adopted and the field be produced to capacity as fast as wells can be drilled, there may result such a scramble to sell oil in an oversupplied market as to spell demoralization of prices. In that event, it is a serious question if the field would ever pay back the cost of its development.

"If an example of sound production policy were needed it could be supplied close at hand. Within the past two years there was opened the Van Field in Van Zandt County, about 40 miles from the new area. Van's production was found in the same formation as the Mexia-Powell Pools which figured prominently in Texas petroleum activity in 1919-23, but showed twice as much pay sand. Here was a new and prolific field, comparatively shallow, easily drilled and located conveniently to pipe lines and terminals. It alone was able to take care of all of the new production needs of the State for some time to come. Without control it might easily have ruined producers working under proration rules elsewhere. Through unitization of operations the amount of oil allowed to come out of the Van Pool has been running at 30,000 bbls. daily, whereas a minimum of 150,000 bbls. could be had if the market wanted it."

to permit unit operation drilling rather than lease operation drilling.

4. Extend the term of the government lease beyond 20 years to the life of the unit operation agreement.

Following this, matters did not move forward rapidly during the months of May and June. Some of the companies delayed filing briefs discussing the proposed unit plan. As late as May 27 it appeared that those companies not having any wells seemed to favor unit operation, while those companies that had wells still seemed to favor controlled development work.

Standard Suggests Plan

On June 27 the Standard Oil Co. presented its objections to a single plan of unit operation. It was confronted with a difficult problem since nearly one-half of its oil reserves in California were in the Kettleman Hills. In any single unit, its percentage of interest would be much greater than that of any other company. On the one hand, it might be charged with controlling the organization or on the other it must conduct itself as a trustee for every other acre of oil land in the field. The Standard therefore proposed that all of the other operators form a unit; that the Standard fee land be treated as another unit, and that the operations of the two units be regulated by agreement. This is the general plan which has been followed. The Standard Oil Co. also has 200 acres of government land under lease inside the blue line which became a part of the Kettleman North Dome Association acreage. Because of the understanding that developed in forming the Kettleman North Dome Association with the help and co-operation of Standard representatives, it is clear that no difficulty will arise in working out the details of the agreement for the operation of the two units.

Congress passed an amendment to the leasing bill which was approved July 3, 1930, making possible the changes necessary to permit the formation of a unit containing government land.

On July 30 Secretary Wilbur and Doctor Smith met with the Kettleman operators. Doctor Smith again came to California during October. Upon his appointment to the power commission, Secretary Wilbur was represented by G. W. Holland who spent a good part of December and January in California. Meetings of the Kettleman North Dome committee were held frequently from August to November and almost daily during December and January.

The final procedure adopted was to incorporate the Kettleman North Dome Association and draft its by-laws, including in such two instruments no controversial matters. This permitted such organization work to proceed during December without further delay. All controversial matters and operating problems were then summed up into an agreement to be signed by the association and all of its operator members.

Royalty Scale Raised

The most important problems requiring solution were those relative to participation and the rate of production of the unit. As an incentive to encourage limited production, the royalty scale on the government "B" leases was increased with the rate of production, so that a high rate of production would be worth while only when there was a real demand for production from the field. The articles of the agreement bearing upon these points are explained to show the manner in which these three problems were met.

Article 3 of the agreement provides for the pro-rata of contribution to call for payments to support the association and for the distribution of oil, gas, natural gasoline and other products. It refers to a map, from which the accompanying map was made, describing the inner line as the "red" line and the outer as the "blue" line.

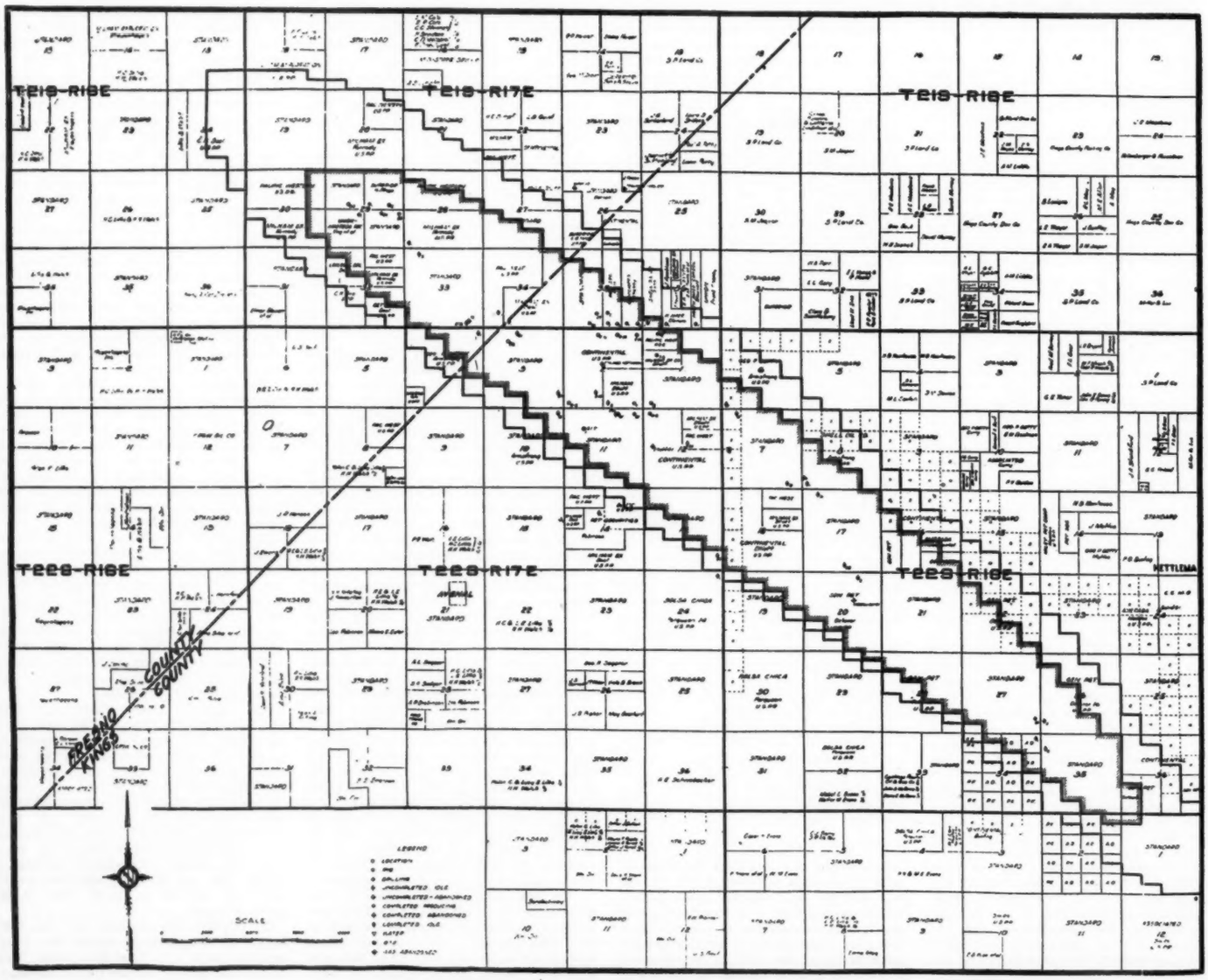
The red line is intended to approximate the contour line 6,500 feet below sea level on top of the Temblor formation. The area within it is never to be reduced, but should subsequent drilling demonstrate that this line does not approximate the 6,500-foot contour line, it may be expanded so that it will approximately follow that contour line. The blue line is intended ultimately to approximate the productive limits of the field and at all times to define the maximum area of participating acreage. The association must diligently determine the correct position of the blue line. During the first five years after the effective date of the agreement the blue line, as drawn on the map, shall not be contracted but may be expanded at any time, and the participation of acreage lying between the red and the blue line may be modified. At the end of the fifth year and up to and including the end of the tenth year, the blue line is to be relocated so as to exclude lands determined to be nonproductive. However, the blue can never be drawn inside the red line nor the 6,500-foot contour line.

Each member shall participate in contributions to costs and distributions of products in the proportion that the acreage he holds within the blue line bears to the total acreage controlled by the association within the blue line.

At the end of each year during the first 10 years the land lying outside of the red line and within the blue line shall be classified in order to determine nonproductive acreage. Thereafter such nonproductive acreage will participate during the first five years as follows: During the first year, 100 per cent; during the second and third years, 50 per cent; during the fourth and fifth years, 25 per cent. From the sixth to the tenth years land between the red and blue lines is to be classified to determine land which is noncommercially productive and, after such classification, the land shall participate to the extent of 50 per cent. Except for these modifications, all land participates on an equal acreage basis, assuming that each section represents 640 acres.

Nonparticipating Acreage

Any member holding nonparticipating acreage, that is, land outside of the "blue" or outer line may at any time drill the same and if it is proven productive, it shall thereupon be included as participating acreage and treated thereafter as other lands within the blue



Kettleman Hills North Dome, Fresno and Kings Counties, California.

line, and the association shall pay the member twice the member's cost of proving the same. None of these changes with regard to land classification are to be made except upon a two-third vote of 11 directors. Eight of the 11 directors will always be controlled by four or five members. Divergent interests of members are protected by Article 3. Those having land between the red and blue lines enjoy participation for the first five-year period, even though classified as nonproductive. Protection of the acreage within the red line against long-continued inclusion of nonproductive lands inside the blue line is afforded by the requirement that the association shall diligently determine the true position of the productive limits of the field.

The provision relative to royalty on the government "B" leases in Article 14 now provides that "computation of royalty accruing to the United States, irrespective of the number of wells on the leasehold and the production therefrom, shall be based on a portion of production allocated to such lease in conformity with the principle for participation of members, provided that the royalty rate for oil for each lease not at 5 per cent shall be computed on the average daily gross oil production for each month of the association's acreage as follows:

	%
Up to 15,000 bbls. per day	12½
When over 15,000 and not over 30,000 bbls. per day	16⅔
When over 30,000 and not over 60,000 bbls. per day	20
When over 60,000 and not over 110,000 bbls. per day	25
When over 110,000 bbls. per day	33⅓

This schedule is based upon 11,740 acres being included in the Kettleman North Dome Association. Actually 10,800 acres have been signed up unconditionally so that the rates of production given above will be adjusted in the proportion of 10,800 to 11,740, or 92 per cent of those given above. Royalty on gas, gasoline and all other substances is to be computed as provided in the standard lease form of the interior department.

The Secretary of the Interior has certified that all leases of government lands in the association shall continue beyond the 20 years specified in the lease and until the termination of the plan.

Approval of the state oil and gas supervisor was made possible under the California gas law. The recent affirmation of the constitutionality of this act by the Supreme Court of the State of California came opportunely in December of 1930.

Article 9 of the agreement was the last one adopted. It deals with the rate of production of the field. This is of great importance to the oil industry of the entire United States and is quoted in full:

"The development and producing operations of the association shall be conducted to obtain the maximum ultimate yield of petroleum products from its properties without wastage of gas prohibited by the laws of the State of California and of the United States of America. The association shall drill and produce such wells as are necessary to yield its required production from the lowest gas-oil ratio zone of the producing horizon consistent with best known engineering practice.

"As soon as it is possible to do so without unlawful waste of gas, the association shall produce its acreage percentage of 50,000 bbls. of crude daily as the minimum output of the Kettleman Hills North Dome with any adjustments upward that the directors consider proper to protect the association's lands from drainage. This basis of production shall be maintained until the end of the year 1931 and shall be thereafter the minimum which may never be reduced except by unanimous consent of the directors.

"After 1931 the directors of the association shall have the direct obligation to all the members of the association to increase the production at a reasonable rate of increase to a daily figure which, yielding at all times the maximum revenue to the members, shall be as nearly as possible a percentage of the crude oil production of the State of California equal to the percentage of the crude oil reserves of the State contained in the lands controlled by the association."

The association does not take over the lands under lease in the Kettleman Hills but is merely granted exclusive possession and operating rights thereon. It will buy from the various members the wells that have already been drilled by them. Much remains to be done before it will be able to take physical possession of these wells and carry on its operations in the field. This can probably be done by April 1, 1931. It is anticipated that at that time the Secretary of the Interior will terminate the agreement of July 25, 1929, whereby some 25 wells are now suspended. By deepening some of these wells, the association will be able to develop the production required under Article 9 of the agreement.

Through this new plan, almost immeasurably valuable oil land is being surrendered to the control of the association by 15 oil companies in the State of California, hence much thought has been given and much effort put forth by those interested in insuring its success. Not only they but the entire oil industry of the State hope that this new departure in oil field development may prove wholly successful and satisfactory in accomplishing the purposes for which the Kettleman North Dome Association was created.

OIL INDUSTRY FURNISHES OVER HALF OF COST OF TEXAS GOVERNMENT

NEW YORK, Feb. 23.—"It would not be strange if an oil man in the Lone Star State absent-mindedly transposed the 'e' and the 'a' and called his state 'Taxes,'" says the Standard Oil Co. (New Jersey) in the forthcoming issue of The Lamp. "For the petroleum industry, directly and indirectly, pays the tax collector well over half the cost of government there. Without oil, the burden on real and personal property, supplemented by a local income, would be more than twice the present rate.

"These figures seem to justify a good-tempered appeal made by the oil man, not for a reduction in tax burden, but against any further increases. He is carrying now all of the taxes he feels he can support, especially in a time of depressed prices for his production.

"The North Texas Oil and Gas Association supplies estimates of taxes paid by the oil industry in 1930. Including the charge on gasoline paid by consumers, oil last year supplied $44,154,756 of the total state revenue from taxation of $77,642,721, or nearly 57 per cent.

"This total is made up of $11,964,000 paid directly on property and gross production, and $32,208,756 produced by the gasoline tax. In addition, the industry paid an estimated $15,000,000 in various local taxes imposed by cities, counties and school districts.

"It is estimated that outside of its taxes, the petroleum industry puts into circulation in Texas the huge sum of $639,500,000 in payrolls, lease and rental payments, royalties, freight charges, purchases of real estate, material, supplies, labor, etc.

"To look at the importance of oil in the prosperity of Texas from another angle, consider its employes. It is estimated that 528,000 of the people of the State are directly dependent for their living on the petroleum industry. There are 120,000 men and women on the oil companies' payrolls and more than 400,000 others in their families."

TRADING SLOW IN OKLAHOMA MARKET

(Continued from Page 20)

to other classes of consumers. Fortunately from the seller's angle the tendency at most refineries is to reduce the yields of products which have to be sold as fuel. This is being accomplished largely through an expansion in cracking operations.

More and more refiners are going to a coke residuum in their cracking operations due to the unsatisfactory fuel oil market. Coke brings little more than an average grade of coal and coal is relatively cheap in Oklahoma due to the nearness of the coal mines. The coke operation gives an increased yield of gasoline and in some cases refiners state that the antiknock quality of their gasoline is improved.

Gasoline and Naphtha

Sellers are hoping that March will bring an improvement in the demand for gasoline. February will close with prices at the lowest levels since prewar days. Although most refiners were asking a low of 4 cents for the U. S. Motor grade the first of the week it was available from reliable sources as low as 3¾ cents. It was being quoted at even lower prices in other areas.

The demand was largely routine, few orders of more than a car or two making their appearance in spot trading. The large buyers who materially aided the market in January and early February are conspicuous by their absence. It is believed that one or more of the larger refiners would be willing to buy excess material from Mid-Continent refiners if conditions were on a more stable basis but they are now awaiting definite indications that the bottom has been reached in quotations with indications that their buying will aid the market.

The higher gravity situation is extremely dull. Due to the low prices prevailing at the Gulf Coast, Oklahoma and other Mid-Continent refiners would have to sell 390 and 375 endpoint gasolines at around 3½ cents in order to compete. The result has been a dearth of spot buying forcing many refiners to shift their plant operations to produce only the export grades. The market, largely nominal, on the 400 endpoint was 4⅛ to 4¾ cents, 390 endpoint, 4⅜ to 5 cents, and 375, 4½ to 5½ cents. The 350 and 360 endpoints are quoted at a low of 5 cents.

The better grades of naphtha are not freely offered and prices are unchanged.

Natural Gasoline

Natural gasoline prices, the first of the week were one-fourth cent lower than they were the previous week. Grade AA dropped from 3½ to 3¼ cents and Grade A from 3¾ to 3½ cents.

The demand for natural gasolines has not been as heavy in February as in January but the quantity of distress material has been relatively small. Without exception, the manufacturers are confident that March will bring a better demand and better prices.

The low prices which have prevailed for several weeks have brought about several shut downs among the older Mid-Continent plants. Some of these shut downs are no doubt permanent for their operating costs are substantially above the present market. Probably no figure could be arrived at which would be representative of the cost of manufacturing natural gasoline because the figure varies with the different fields and types of plants. But there can be no doubt that the Mid-Continent industry as a unit has been operating at a loss for several weeks.

When all factors are taken into consideration it is probable that the actual cost of manufacturing and selling natural gasoline is more than many of the manufacturers themselves think. Taking the present price of 3¼ cents for Grade AA, the principal grade manufactured in the Mid-Continent, from one-fourth to one-third of this tank car price goes to the royalty owner leaving the manufacturers from 2 to 2½ cents a gallon to cover all the plant operating costs including gathering, processing and loading. Usually outage claims by buyers run around .2 cent per gallon.

It is predicted that the results of this situation, unless it shows material change in the near future, will be a new contract basis with producers covering casinghead gasoline. It also will result in the permanent shut down or consolidation of a large number of plants in the older fields where it is estimated that actual production costs often run as high as 6 cents a gallon.

Kerosene

Some price shading in kerosene is reported in trade circles. The lower prices are coming from sources both within and outside Group 3. However, most sellers are quoting a low of 3 cents for 41-43 water white kerosene which meets all other specifications in regard to burning test and sulphur content. Some of the material under 3 cents does not meet all these requirements. No change in demand is apparent.

Fuels

The spot market in all grades of fuels is so slow that it is difficult to determine prices, many quotations being nominal as there is very little spot demand. Some grades usually of exceptionally high cold test or high sulphur have been sold under 40 cents. These grades have ranged in gravity up to 22.

The general market starts at a low of 40 cents for grades under 18 gravity and ends with a top price of 85 cents for material up to 30 gravity of zero cold test. Some low cold test 28-30 fuel oil sold as low as 70 cents the past week although the general market on this grade is 75 cents.

Sales of industrial or U.G.I. gas oil under 2 cents are occasionally reported but in Oklahoma 2 cents appears to be usual low of the market. Zero cold test gas oil of low flash suitable for furnace oil is scarce in Oklahoma at 2⅝ cents. The higher gravity distillates have been sold as low as 2⅜ cents. The 36-38 was freely available at 2½ cents and 38-40 at a low of 2⅝ cents.

Lubricants and Wax

The general reduction of 1 cent in bright stocks followed a period in which individual refiners had shaded prices to meet competition coming largely from Middle Western and Gulf Coast refiners. The zero to 10 grades were sold at a high of 19 cents for the 150-160 D. The higher cold tests sold as low as 15 cents. This price situation is in contrast to that of a year ago when the 150-160 grade was quoted at 36 cents.

Some scattered reductions have also been made in steam refined stocks including the best grades. One large refiner who had been quoting at the high of the neutral oil market made a general reduction in quotations. The wax market is not active but prices are steady.

VALUABLE TOOL FOR GEOLOGISTS

The bibliography of North American geology for the 10 years 1919-1928, just issued by the United States Geological Survey as Bulletin 823, is an almost indispensable working tool for geologists in active service. It lists publications on the geology of the continent of North America and the adjacent islands, Panama, and the Hawaiian Islands. The main list is arranged alphabetically by authors and is followed by a very full index to the literature cited. This volume supplements Bulletins 746 and 747, which covered the same ground for the years 1785-1918, and the three bulletins therefore afford a complete picture of the vast amount of study that had been given to North American geology to the end of the year 1928. Bulletin 823 contains over 1,000 pages and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for $1.25.

SINCLAIR IN CALIFORNIA

LOS ANGELES, Calif., Feb. 23.—Presence in Los Angeles of Harry F. Sinclair, chairman of the board of Sinclair Consolidated Oil Corp., John H. Markham, president of Petroleum Corp. of America; C. G. Stanford, general counsel for the Sinclair interests, and Harry H. Rogers, president of Exchange National Bank of Tulsa, Okla., has revived interest in the possibility of entrance into California of Sinclair Consolidated Oil Corp. Mr. Sinclair is quoted as saying recently that he has not given up the idea of extending his operations to California.

PROGRAM FOR ANNUAL MEETING OF ASSOCIATION OF GEOLOGISTS

The sixteenth annual meeting of the American Association of Petroleum Geologists will be held March 19-21 at San Antonio, Tex., at the Gunter Hotel. The San Antonio Geological Society, which is an official section of the national association, is the host and will provide plenty of local entertainment besides field trips to the Balcones and Mexia fault lines, to Laredo, and into Mexico.

The national officers of the association, which now has 2,550 members, are: President, Sidney Powers, chief geologist for the Amerada Petroleum Corp., Tulsa; past president, J. Y. Snyder, operator, Shreveport, La.; first vice president, R. D. Reed, chief geologist for The Texas Company of California, Los Angeles, Calif.; second vice president, Marvin Lee, consulting geologist, Wichita, Kans., and third vice president, Frederic H. Lahee, chief geologist for the Sun Oil Co., Dallas, Tex.

The officers of the San Antonio section are: President, D. R. Semmes, consulting geologist; past president, Charles H. Row of the Sun Oil Co.; vice president, H. H. Cooper, consultant; secretary-treasurer; Ed W. Owen of L. H. Wentz oil division, and member executive committee, J. M. Dawson of the Gulf Production Co.

The San Antonio committee on general arrangements is composed of the following chairmen: General committee, D. R. Semmes; technical program, Charles H. Row; finance, H. H. Cooper; reception, L. F. McCollum; entertainment, L. W. MacNaughton; ladies' entertainment, J. B. Whisenant; registration, E. H. Finch; trips, J. M. Dawson; transportation, Ward W. Kelley; exhibits, J. D. Hedley; publicity, R. F. Schoolfield; golf, Don Danvers.

Concurrent meetings to be held with the geologists are those of the Society of Economic Paleontologists and Mineralogists and the Society of Petroleum Geophysicists.

Convention Program

The convention program includes the following events:

Monday and Tuesday, March 16-17

Preliminary registration and committee meetings, Gunter Hotel.

Wednesday, March 18

Registration; executive, research and business committees, Gunter Hotel.

Darst Creek-Luling Field trip.

Thursday, March 19

Registration, Gunter Hotel.

Technical sessions, Municipal auditorium.

Nomination of officers.

Friday, March 20

Ballot boxes open all day, Gunter Hotel.

Technical sessions, Gunter Hotel.

Golf tournament, San Antonio Country Club.

Entertainment and dance, Municipal auditorium.

Saturday, March 21

Sixteenth annual business meeting, announcement of new officers, technical sessions, Gunter Hotel.

Laredo-Corpus Christi, Mexico and Marathon area field trips.

Sunday, March 22

Edwards Plateau field trip.

Group 1—Gulf Coast Papers

1. "Factors Governing Accumulation of Oil and Gas in Mirando and Pettus Districts, Gulf Coastal Texas, and Application of These Factors to Other Areas," by O. L. Brace.
2. "General Geology of Northeastern Mexico," by J. L. Tatum.
3. "Geology of Darst Creek Field, Guadalupe County, Texas," by H. D. McCallum.
4. "Further Data on Cap Rock Petrography," by L. S. Brown.
5. "Overhanging Cap Rock and Salt at Barbers Hill, Chambers County, Texas," by Sidney Judson and P. C. Murphy.
6. "Structural Development of Local Geologic Features Associated With Commercial Deposits of Petroleum on Salt Domes," by Marcus A. Hanna.
7. "Mechanics of Formation of Salt Domes," by D. C. Barton.
8. "Airplane Mapping," by R. B. Whitehead.
9. "Disseminated Oil in Beaumont and Lissie Formations in Corpus Christi District, Texas," by W. Armstrong Price.
10. "Kingsville Field, Kleberg County, Texas," by Olin G. Bell.
11. "Exceptional Association of Oil and Water in Producing Zones at Refugio, Tex.," by R. G. Maxwell.
12. "Early Paleozoic Seas in Texas Region," by E. H. Sellards.
13. "Chapman Field of Williamson County, Texas," by E. H. Sellards.
14. "Chemical Character of Underground Waters of Eocene Formations of South Texas," by John T. Lonsdale.
15. "Richland Gas Field, Richland Parish, Louisiana," by Dugald Gordon.

Group 2—West Texas-New Mexico

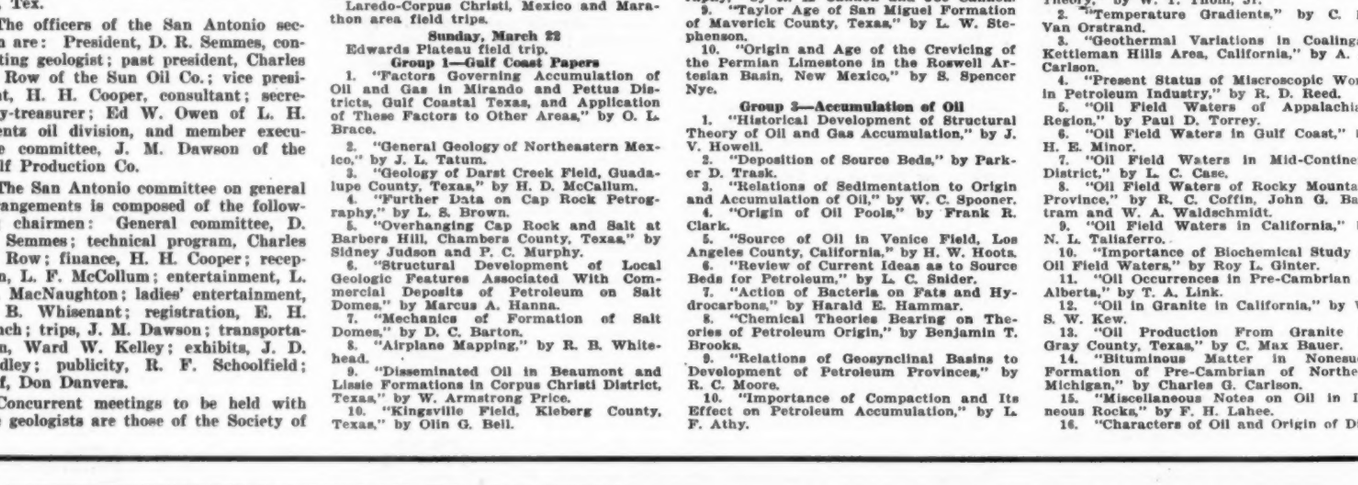
1. "Precarboniferous Stratigraphy of Marathon Uplift," by Philip B. King.
2. "Early Pennsylvanian Possible Ice-Transported Deposits in Upper Haymond Formation of Marathon Area, Texas," by Charles Laurence Baker.
3. "Reef Barriers and Saline Residues in Permian of Texas and New Mexico," by E. Russell Lloyd.
4. "Evidences of Structure Within Big Lime of West Texas Permian Basin," by W. V. Howard.
5. "Cross Sections of Permian Basin of Texas and New Mexico," by H. P. Bybee, H. A. Hemphill, E. F. Boehms, C. P. Butcher and G. E. Green.
6. "Geology of Hobbs Field, Lea County, New Mexico," by Ronald DeFord.
7. "Chalk Field, Howard and Glasscock Counties, Texas," by W. Ralston.
8. "Structural Development of South Permian Basin Area of West Texas, With Particular Regard to Its Effect on Stratigraphy," by R. L. Cannon and Joe Cannon.
9. "Taylor Age of San Miguel Formation of Maverick County, Texas," by L. W. Stephenson.
10. "Origin and Age of the Crevicing of the Permian Limestone in the Roswell Artesian Basin, New Mexico," by S. Spencer Nye.

Group 3—Accumulation of Oil

1. "Historical Development of Structural Theory of Oil and Gas Accumulation," by J. V. Howell.
2. "Deposition of Source Beds," by Parker D. Trask.
3. "Relations of Sedimentation to Origin and Accumulation of Oil," by W. C. Spooner.
4. "Origin of Oil Pools," by Frank R. Clark.
5. "Source of Oil in Venice Field, Los Angeles County, California," by H. W. Hoots.
6. "Review of Current Ideas as to Source Beds for Petroleum," by L. C. Snider.
7. "Action of Bacteria on Fats and Hydrocarbons," by Harald E. Hammar.
8. "Chemical Theories Bearing on Theories of Petroleum Origin," by Benjamin T. Brooks.
9. "Relations of Geosynclinal Basins to Development of Petroleum Provinces," by R. C. Moore.
10. "Importance of Compaction and Its Effect on Petroleum Accumulation," by L. F. Athy.
11. "Study of Evidences of Lateral and Vertical Migration of Oil," by F. H. Lahee.
12. "Present Interpretation of Structural Theory of Oil and Gas Migration and Accumulation," by Chester W. Washburne.
13. "Discussion of Oil and Gas Accumulation in Limestone," by W. V. Howard.
14. "Structural Occurrence of Gas," by Henry A. Ley.
15. "Present Interpretations of Structural Theory for Oil and Gas Migration and Accumulation," by W. Ross Keyte and Alexander W. McCoy.
16. "Significance of Unconformities on Structures Bearing Oil and Gas in California," by H. W. Hoots.
17. "Significance of Unconformities on Oil and Gas-Bearing Structures in Gulf Coast," by David P. Carlton and J. A. Waters.
18. "Present Interpretations of Structural Theory for Oil and Gas Migration and Accumulation," by John L. Rich.
19. "Physical and Chemical Factors in Accumulation and Discharge of Oil," by P. G. Nutting.
20. "Relation of Porosity to Production of Oil and Gas and Geologic Structure," by A. F. Melcher.
21. "Bacterial Genesis of Hydrocarbons," by Lewis A. Thayer.

Group 4—Technical Papers

1. "Present Status of Carbon Ratio Theory," by W. T. Thom, Jr.
2. "Temperature Gradients," by C. E. Van Orstrand.
3. "Geothermal Variations in Coalinga-Kettleman Hills Area, California," by A. J. Carlson.
4. "Present Status of Miscroscopic Work in Petroleum Industry," by R. D. Reed.
5. "Oil Field Waters of Appalachian Region," by Paul D. Torrey.
6. "Oil Field Waters in Gulf Coast," by H. E. Minor.
7. "Oil Field Waters in Mid-Continent District," by L. C. Case.
8. "Oil Field Waters of Rocky Mountain Province," by R. C. Coffin, John G. Bartram and W. A. Waldschmidt.
9. "Oil Field Waters in California," by N. L. Taliaferro.
10. "Importance of Biochemical Study of Oil Field Waters," by Roy L. Ginter.
11. "Oil Occurrences in Pre-Cambrian of Alberta," by T. A. Link.
12. "Oil in Granite in California," by W. S. W. Kew.
13. "Oil Production From Granite in Gray County, Texas," by C. Max Bauer.
14. "Bituminous Matter in Nonesuch Formation of Pre-Cambrian of Northern Michigan," by Charles G. Carlson.
15. "Miscellaneous Notes on Oil in Igneous Rocks," by F. H. Lahee.
16. "Characters of Oil and Origin of Dif-



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ferences in Various Environments," by Paul Weaver.

17. "Variations of Gravity of Oil in Pools of the Mid-Continent Region," by Charles H. Pishny.

18. "Variations of Gravity of Oil in Eastern Fields," by K. C. Heald.

19. "Physical Characteristics of Bradford and Other Typical Oil Sands of Pennsylvania and Their Relation to Production of Oil," by Charles R. Fettke.

20. "Variations of Gravity of Oil in California," by Paul W. Prutzman.

21. "Variations of Gravity of Oil in Pools of Rocky Mountain District," by John G. Bartram.

22. "Variations of Baume Gravity of Oil With Depth in Gulf Coast," by Donald C. Barton.

23. "Notes on Venezuelan Oil Field Waters," by James E. Smith.

24. "Mechanics of Formation of Gulf Coast Salt Domes," by Donald C. Barton.

25. "Solution to Problem of Damage Sustained Through Offset Drainage," by C. A. Warner.

Group 5—Other Fields

1. "Depositional and Structural Features of Michigan Synclinal Basin," by R. B. Newcombe.

2. "Mount Pleasant Pool, Leaton Pool and Vernon Township Pool, Michigan," by George Pirtle and W. A. Thomas.

3. "Mississippian Sediments of Illinois, Indiana and Western Kentucky," by J. Marvin Weller.

4. "Deep Sand Development in Tioga County, Pennsylvania," by Jack Gaddess.

5. "Interpretation of Local Structural Development in Areas Associated With Deposits of Petroleum in Appalachian District," by W. Armstrong Price.

6. "Interpretation of Local Structural Development in Areas Associated With Deposits of Petroleum in Mid-Continent Region," by Alexander W. McCoy.

7. "Ancestral Rockies and Paleozoic Correlation in Rocky Mountain Region," by I. A. Keyte and Ross L. Heaton.

8. "Geology of Southwestern Iowa," by L. C. Burling.

9. "Oil Possibilities in Turkey," by Djevad Eyoub.

10. "Cretaceous Limestone as Petroleum Source Rock in Northeastern Venezuela," by Hollis D. Hedberg.

11. "Correlation Between Later Cenozoic Deposits of California and of Europe," by Hoyt Rodney Gale.

12. "Geology of Kettleman Hills, California," by G. C. Gester and J. Galloway.

13. "Oil Seepages in Belt Series of Rocky Mountains Near International Boundary," by Theodore A. Link.

14. "Revision of Upper Permian of Western Oklahoma," by Henry Schweer.

15. "The Voshell Pool, McPherson County, Kansas," by T. C. Hiestand.

16. "Moisture in Coal as Indicator of Oil and Gas in Pennsylvania," by Harley S. Gibbs.

17. "Compaction of Sediments at Cason Manganese Mine, Batesville, Ark.," by Hugh D. Miser.

Geophysics

1. "Belle Isle Salt Dome; Quantitative Study With Torsion Balance," by D. C. Barton.

2. "Refraction and Reflection Shooting," by Eugene McDermott.

3. "Notes on Magnetic Disturbance Caused by Buried Casing," by William M. Barret.

4. "Results of Magnetometer Surveys in California," by E. D. Lynton.

5. "Horizontal Magnetic Intensity Attachment for Brunton Compass," by John H. Wilson.

6. "Preliminary Note on Magnetic Model Experiment," by C. A. Heiland and Dart Wantland.

7. "Electrical Method for Exploring Faults and Faulted Structures," by Norman Ricker and Hart Brown.

8. "Results of Seismograph Investigation With Detectors," by McCollum Exploration Co.

9. "Compaction Theory of Gravitational Anomalies," by Robert H. Miller.

10. "Fundamental Aspect of Eotvos Torsion Balance," by R. K. Jacobson.

11. "Some Results of Torsion Balance Surveys in California," by Frank A. Moss.

12. "Laboratory Experiments for Interpretation of Magnetometer Surveys," by Paul B. Whitney.

13. "The Analysis of Some Torsion Balance Results in California," by Robert H. Miller.

Paleontological Papers

1. Correlation of Jackson Formation," by Alva C. Ellisor.

2. "Zonation of Upper Cretaceous on Basis of Ammonites," by W. S. Adkins.

3. "Marine Wilcox," by Julia Gardner.

4. "Petrographic Characters of Eocene Sands From Southwest Texas," by M. S. Metz, M. T. Halbouty and John T. Lonsdale.

5. "Larger Foraminifera of Claiborne of Texas and Louisiana," by D. W. Gravell.

6. "Larger Tertiary Foraminifera of Venezuela," by D. W. Gravell.

7. "New Species of Lower Cretaceous Ophiuroid," by C. I. Alexander.

8. "Significant Foraminifera of Taylor and Navarro of North Central Texas," by John Peter Smith.

9. "Post-Eocene Section of Chico Martinez Creek," by Paul P. Goudkoff and Donald D. Hughes.

10. "Miocene Foraminifera From Los Sauces Creek, Ventura County, California," by Joseph A. Cushman and Boris Laiming.

11. "Tentative Plan for Bibliography and Index of Foraminifera," by G. Dallas Hanna.

Interesting Meetings To Mark California's Equipment Exposition

By L. P. Stockman

Engineering societies which will hold meetings during the second annual oil equipment and engineering exposition in Los Angeles, Calif., March 16 to 22, 1931, have prepared programs indicating the trend in operating methods. The Pacific Coast divisions of the American Institute of Mining and Metallurgical Engineers and of the American Welding Society and the Southern California Meter Association will hold their meetings in the Technical Hall at the exposition grounds. The production division of the American Petroleum Institute will meet at the Engineers Club and the California Natural Gasoline Association will meet in the Alexandria Hotel

The American Petroleum Institute meeting will have three papers preceded by a dinner. The first paper will cover rig foundations and cellar construction with particular attention to the practices followed in the Kettleman Hills Field. Two papers will deal with vapor recovery systems; one presenting the subject from the theoretical side and the other from the practical application with data on results already obtained.

The A.I.M.E. meeting will be confined to the discussion of straight hole practice and will consider the various types of instruments that have been developed both for indicating a well's deviation from the vertical while being drilled and for surveying the amount and direction of inclination of completed wells.

Both the electric arc and the oxy-acetylene methods of welding will be discussed at the meeting of the American Welding Society. Demonstrations will be given and the practical application of the principles discussed will be shown. The technical session will be preceded by a dinner.

The California Natural Gasoline Association will meet at its regular meeting place after the dinner. The association will have a booth in the Technical Hall with data for use of visitors interested.

The Southern California Meter Association meeting will be preceded by a dinner in the meeting room at the exposition grounds. Here will be discussed the many problems of control and regulation and the most advanced methods of measurements and computation. Papers will be illustrated with slides.

Manufacturers interested in foreign markets have planned a meeting where the various aspects of foreign trade will be discussed. It will be held at 8 p.m. on March 18 at the exposition. The committee in charge consists of W. F. Martin of Martin-Decker Corp., chairman; T. Sutter of Baker Oil Tools, Inc.; L. C. Harbert of J. P. Ratigan Co.; B. A. Cleveland of Regan Forge & Engineering Co., and C. Homer Spotts of McEverlast, Inc.

The object of this meeting is to present information relative to petroleum activities throughout the world, including current operations, prospective work, economic conditions, conditions affecting the industry in each country, governmental and social influence and other data pertinent to the application of American equipment. The servicing of equipment in far distant localities is a problem to be considered.

W. H. MILLIKEN DIES

BOWLING GREEN, Ohio, Feb. 21.—Funeral services were held here for William H. Milliken, 77, who died in the Milliken Hotel after a long illness. Mr. Milliken was one of Wood County's earliest pioneer oil producers and continued active in the Lima Field for more than 50 years. Along in 1905 he was operating in the Glenn Pool in Oklahoma and had a production so large that he had to construct pits to care for the crude until it could be taken by pipe line. He later went to Mexico, where he amassed a fortune in the oil fields, only to lose it during the Mexican Revolution of 1911.

GOV. MURRAY APPOINTS TWO OIL INVESTIGATORS

OKLAHOMA CITY, Okla., Feb. 23.—Cicero Murray and Roy M. Johnson have been appointed by Gov. William H. Murray to make an investigation of the oil business in Oklahoma to find out whether or not the state proration umpire is carrying out the orders of the Corporation Commission, also if the commission's orders are just and equitable as between the different producers—and if proration is just and equitable between Oklahoma City and other fields in the State. The committee is to report within 30 days.

Roy M. Johnson

Cicero Murray is a cousin of the governor, and a lawyer. Johnson is a well-known oil producer with widely diversified producing interests and with 18 years' experience as a producer in Oklahoma.

Both Murray and Johnson are known for thoroughness in hunting down facts and in an interview on Monday Murray is quoted as saying that he will go into the inquiry thoroughly. He will begin by asking the Corporation Commission to order a new potential gauge made of the wells in the Oklahoma City and other Oklahoma pools now under proration.

NEW ARMCO PIPE

The American Rolling Mill Co., Middletown, Ohio, has developed a new fabricating process and is now producing spiral welded pipe, it is announced. The pipe is said to be lighter in weight and easier to handle and is manufactured in sections of 40 feet, reducing the number of field joints.

RADIO TALK BY TORREY

Paul D. Torrey of Torrey, Fralich & Simmons, geologists and petroleum engineers of Bradford, Pa., will give a radio talk, sponsored by the Buffalo Courier-Express, on "The Natural Gas Industry of New York State" on Sunday evening, March 1, at 6 o'clock eastern standard time over Station WKBW of the Columbia broadcasting system.

The arrow points to one of the gills of the Byrne Revolving Ventilators. These slits keep it on an even keel while revolving and provide just the right amount of suction.

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Revolving Ventilator built light, strong and compact as an airplane

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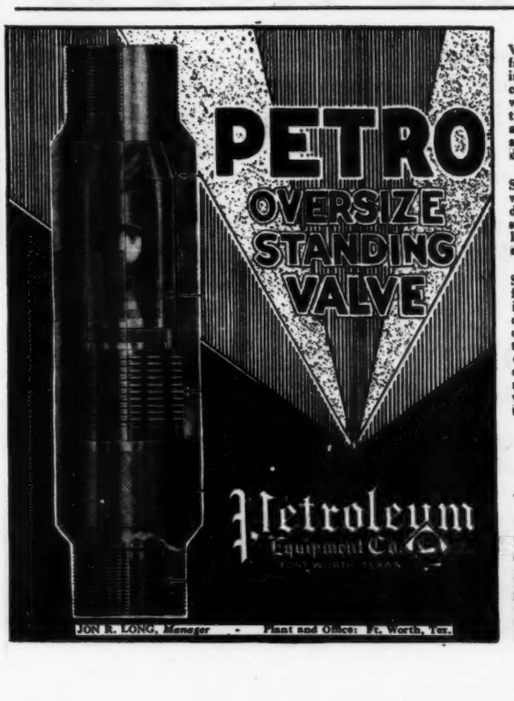

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Write for list of distributors.

GASOLINE IMPORTS IN CANADA SHOW GAINS

(Continued from Page 113)

some of the smaller plants had previously been shut down.

The gasoline tariff went into effect on September 15, 1930, and as it had been foreshadowed, there was an extra heavy import of gasoline in the early part of September, doubtless to escape the impost. October imports showed an increase over the same month in 1929. On the other hand, November showed a marked decrease. Comparative figures for the last six months of the two years are as follows:

	1929	
Month—	Gallons	Value
July	22,137,998	$2,635,673
August	21,332,945	2,410,517
September	19,878,983	2,182,419
October	16,803,876	1,791,103
November	16,230,876	1,787,905
December	8,566,169	945,522

	1930	
Month—	Gallons	Value
July	18,287,241	$1,923,195
August	16,481,758	1,737,779
September	21,237,822	2,195,491
October	18,324,397	2,014,616
November	11,331,541	1,096,230
December	10,678,866	891,195

Natural Gasoline

These figures, however, include an important new factor in the import trade since September 15—casinghead gasoline imported by Canadian refiners for blending. This product is classified as "natural casinghead, compression or absorption gasoline, lighter than .6690 specific gravity at 60° temperature, when imported by distillers of petroleum for blending with other gasoline distilled in Canada." This classification has been in force only since September 17, 1930, the product entering duty free. Imports under this head are given as follows:

	Gallons	Value
September	16,832	$2,336
October	1,634,809	176,122
November	3,256,316	287,554
December	4,015,835	309,231

There were, of course, no imports classified under this head in 1929, or prior to September 17, 1930.

Imports of gasoline "not otherwise prescribed" but understood to be for further refining purposes are given as follows, in 1930:

	Gallons	Value
July	44	$12
August	.....	.....
September	312,335	31,053
October	5,122,003	550,537
November	3,417,469	389,004
December	1,665,077	157,508

In this classification, there were in 1929 imports of 2,398 gallons valued at $579 in September and 5,284 gallons valued at $502 in November.

Imports of gasoline for retail are consequently represented largely in the two main categories following:

1. Gasoline under .725 specific gravity at 60° temperature:

	1929	
Month—	Gallons	Value
July	17,820,769	$2,092,491
August	16,758,966	1,838,501
September	14,208,093	1,502,233
October	12,942,654	1,309,688
November	11,565,632	1,247,503
December	7,239,567	793,253

	1930	
Month—	Gallons	Value
July	11,334,844	$1,178,604
August	10,128,489	992,211
September	13,286,333	1,296,408
October	7,512,151	848,086
November	3,399,222	299,802
December	2,837,972	235,608

2. Gasoline, .725 specific gravity and heavier, but not heavier than .770 specific gravity at 60° temperature:

	1929	
Month—	Gallons	Value
July	4,317,229	$543,182
August	4,573,979	572,016
September	5,468,492	679,607
October	3,861,222	481,415
November	4,659,960	539,900
December	1,275,602	152,269

	1930	
Month—	Gallons	Value
July	6,952,353	$744,579
August	6,353,269	745,568
September	7,622,322	865,694
October	4,055,434	439,871
November	1,258,534	119,870
December	2,159,982	188,848

A perhaps significant feature is the considerable upturn in imports in September, 1930, as against August, but this anticipation of the tariff by larger imports in the early part of the month may have had quite as much to do as the tariff itself with the drop in imports in the later months of the year.

Antidumping Clause

A factor of some importance in respect to gasoline imports is the antidumping clause of the customs act. Clause 36 of the customs act provides:

1. Such market value shall be the fair market value of such goods in the usual and ordinary commercial acceptation of the term and as sold in the ordinary course of trade, such value in no case to be lower than the selling price thereof to jobbers or wholesalers generally at the time and place of shipment direct to Canada.

2. Provided that the value for duty of new or unused goods shall in no case be less than the actual cost of production of similar goods at date of shipment direct to Canada, plus a reasonable advance for selling cost and profit, and the minister shall be the sole judge of what shall constitute a reasonable advance in the circumstances and his decision thereon shall be final.

Under this clause importations of gasoline from Pennsylvania have been appraised at a 3-cent per wine gallon differential over the posted price of Bradford-Allegany crude. If the selling price to the purchaser in Canada is lower than this appraised value, the dumping duty applies. The appraisal of importations of gasoline from other sections of the United States is at present under consideration under the same section of the act.

Another factor is the undertaking, given by the Canadian refiners before the tariff was enacted, that they would not increase the retail price of gasoline to Canadian consumers if tariff protection were given them. The retail price has, in fact, been reduced by the Canadian refiners since the tariff went into effect.

Imports of crude petroleum into Canada do not, however, indicate increased activity on the part of Canadian refineries in the period under consideration. The following are the comparative figures for "crude petroleum in its natural state, .7900 specific gravity or heavier at 60° temperature when imported by oil refiners to be refined in their own factories":

	1929	
Month—	Gallons	Value
July	114,782,793	$5,124,026
August	117,696,763	5,170,051
September	79,579,689	3,602,275
October	122,600,239	5,721,955
November	149,756,135	7,108,516
December	67,060,193	3,042,344

	1930	
Month—	Gallons	Value
July	92,547,060	$3,525,375
August	100,570,898	3,698,462
September	105,472,553	4,074,181
October	94,738,929	3,680,577
November	74,970,245	2,675,143
December	69,387,926	2,450,006

To this there must be added a smaller item of "crude petroleum not in its natural state, .725 specific gravity or heavier, but not heavier than .770 specific gravity at 60° temperature," also imported for refining. This item is as follows:

	1929	
Month—	Gallons	Value
July	92,094	$9,209
August	51,730	6,207
September	466,429	30,602
October	26,727	2,174
November	99,779	13,171
December	63,204	8,343

	1930	
Month—	Gallons	Value
July	2,643,262	$173,680
August	.....	.....
September	33,649	240
October	53,794	6,276
November	320,145	16,007
December	.....	.....

MEXICAN EAGLE OIL TO CURTAIL

The Mexican Eagle Oil Co., a subsidiary of Royal Dutch-Shell, is soon to reduce its Mexican operations greatly, according to Mexico City advices. It was explained that the move was in conformity with conservation programs in the United States.

These are the Revolutionary Features

- One automatic self-opening die head covers complete capacity range.
- One set of H. S. S. chasers threads complete standard range—changeable only for thread or pitch variation. (In the 8-inch machine shown from 2½-inch to 8-inch without change.)
- Chasers are easily and quickly changed. Screw-driver only tool required.
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- *Timken Roller Bearing* Equipped.
- Extremely sturdy construction, based on half a century's experience in building threading machines. Exceptional reliability.

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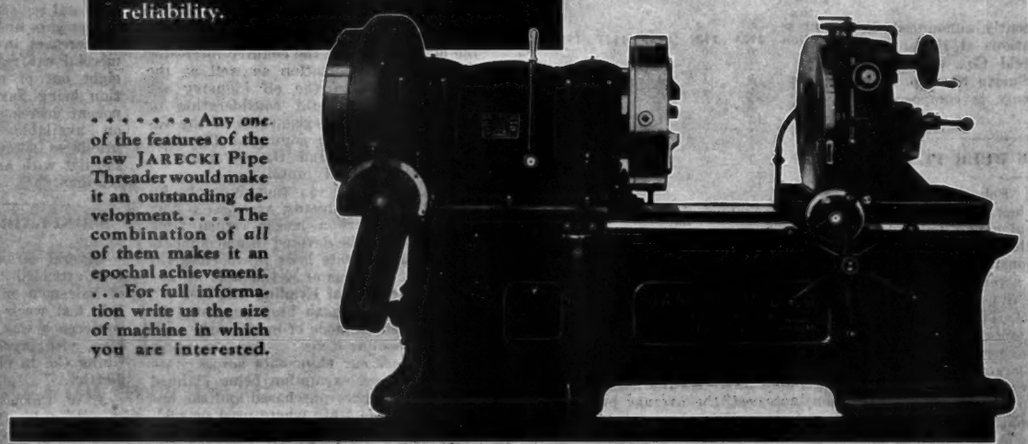

. . . . . Any one of the features of the new JARECKI Pipe Threader would make it an outstanding development. . . . . The combination of *all* of them makes it an epochal achievement. . . . For full information write us the size of machine in which you are interested.

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Of Interest to Sales Departments

EXPAND SHELL MARKET FOR COKE PRODUCTION

The problem of disposing of the rapidly growing pile of coke taken from cracking stills of the Shell Petroleum Corp. refinery at East Chicago, Ind., after coal dealers refused to handle the waste product fuel, brought out a solution which not only reduced the coke heap to the daily production, but reversed the situation so that the refinery now faces the problem of meeting the demand for coke.

When the necessity for removing the oil coke from the refinery yard became so imperative that the only alternative presented was reversion to some other type of cracking process in which coke production would be cut to a minimum with an increase in operating cost, it was decided to offer the fuel to persons equipped to haul the coke at a price which would assure the truck owner of a fair profit. In the five months which followed 50,000 tons of coke were bought, and the demand has grown steadily with the result that coke has been shipped to the East Chicago plant from the Wood River, Ill., refinery, and the coal dealers are now placing orders.

COMPLETE BLENDING PLANT

HOUSTON, Tex., Feb. 21.—Shell Petroleum Corp. has just completed the installation of a tetraethyl lead blending plant at its Deer Park refinery, east of Houston, and now is prepared to place Ethyl Gasoline on the market at all its stations in this district this week.

Shell Petroleum Corp. is the last of the larger companies to start handling Ethyl Gasoline here, following the action of Gulf Refining Co. in adopting Ethyl. Gulf two weeks ago placed Ethyl Gasoline at all its stations, combining this with its former No Nox gasoline and designating the new product as No Nox Ethyl.

Shell has just recently announced the sale of 11 of its stations at Houston to the Gordon-Wilkenfield Co., which will operate them as exclusive Shell product stations. This company is composed of local interests.

HUMBLE PLANS BULK PLANT

HOUSTON, Tex., Feb. 21.—Humble Oil & Refining Co. has completed plans for the construction of a new bulk plant and warehouse for the Houston district. The plant will be constructed on an 8-acre site purchased several months ago and located on the upper part of the Houston ship channel. The location has 1,350 feet of water frontage and dockage facilities will be provided whereby the company's products barged up the channel from the Baytown refinery can be unloaded directly into storage. The project will cost approximately $300,000 and will get under way by the middle of March. The plant will replace a somewhat smaller one located in the heart of Houston and which necessitated either a tank car haul or a double handling of the products.

SUBSTITUTE LIQUID COAL

Liquid coal could be readily substituted for fuel oil in case oil supplies were depleted according to Dr. Thomas S. Baker, president of the Carnegie Institute of Technology of Pittsburgh, who returned last week from a visit to Europe. He said that the coal industry was never in as bad condition as it is at present and said that some new form of utilization would be necessary to change this situation.

FEWER TAX EVASIONS IS SOLUTION FOR MOUNTING FUEL LEVY PROBLEM

By Harry T. Klein
General Counsel, The Texas Company

The legislatures of more than 40 states are in session at the present time and, in at least 20 of these states, bills proposing an increase of gasoline taxes either have been introduced or are being agitated.

It would be far more in the interest of all concerned (the state, the motoring public and the oil industry) if such efforts were devoted to securing amendments of existing laws prohibiting evasion of payment of present taxes, rather than increasing the amount of the tax. The present rate of the tax is far too high.

In March, 1929, the board of directors of the American Petroleum Institute adopted the following resolution:

Resolved: That we do not oppose the levying of a gasoline tax where all the revenue derived therefrom is used solely for highway construction and maintenance purposes; but we oppose the fixing of a rate per gallon tax beyond reasonable bounds, or where the rate the consumer must pay is out of equitable proportion to the price of the gasoline.

First Gasoline Tax

The first gasoline tax adopted in the United States was in February, 1919, by an initiative in Oregon. This was a tax of 1 cent a gallon. Since that time the tax has grown in size and spread in area to such an extent that it is now in force in every state in the Union with the rate varying from 2 to 6 cents per gallon. Probably no other system of taxes in history has experienced such enormous growth from such a small beginning.

The following table will illustrate the rapidity of the increase in this tax since 1925:

Number of States With Gasoline Sales Taxes
(Including the District of Columbia)

Rate of tax cents per gallon	1925	1926	1927	1928	1929	1930
6	0	0	0	0	3	3
5	1	2	5	6	8	10
4½	0	1	1	0	0	0
4	5	6	10	11	19	17
3½	2	2	1	1	1	1
3	12	9	18	18	10	11
2½	1	1	0	0	0	0
2	21	22	12	10	8	7
1	3	2	0	0	0	0
Total	45	45	47	46	49	49

Simple Average of Gasoline Sales Taxes

Cents per gallon	2.11	2.41	2.81	3.04	3.50	3.79

Weighted Average Price 58-60 U. S. Motor Gasoline f.o.b. Group 3 (Okla.)

Cents per gallon	10.65	10.46	6.86	7.97	7.78	6.25

The tabulation also shows the average price per gallon since 1925 paid for 58-60 motor gasoline in tank car lots in Group 3 (Oklahoma). As the average tax rate has increased, the average price per gallon for gasoline has substantially decreased.

In 1925 the average tax equalled approximately 20 per cent of the Group 3 tank car price. In 1930 it was more than 60 per cent of this price, and at the present time the average tax equals nearly 85 per cent of the Group 3 tank car price.

The price of gasoline in tank car lots at Texas Gulf ports is approximately 1½ cents per gallon higher than the Group 3 price, but even on this basis at the present time the average tax is more than 60 per cent of the price of gasoline at Texas Gulf ports in tank car lots.

Manifestly a sales tax of this magnitude is out of all proportion to the price of the commodity and can in no sense be considered equitable or fair. It more resembles confiscation.

Consumers of gasoline should also bear in mind that in addition to this sales tax there is included in the cost of each gallon of gasoline sold at service stations a proportionate part of production taxes, ad valorem taxes, franchise taxes, inspection taxes and income taxes paid by the oil industry; and also a proportionate part of the taxes paid by the transporting companies and the distributor or wholesaler and the dealer or retailer.

Levies Numerous

In addition motor car owners pay property taxes on their cars and also substantial license or registration taxes. The American motorist is a very patient individual but the time has arrived to call a halt on mounting gasoline taxes.

In contrast to this sales tax, representing an amount equal to at least 60 per cent of the tank car price of the commodity, the total of which tax in the year 1930 is conservatively estimated to have aggregated more than $500,000,000, it is estimated that during the years 1921 to 1928, inclusive (the last years for which figures are available), the oil industry earned an average of approximately $245,000,000 annually. It is conservatively estimated that the earnings of the oil industry for the year 1930 will be far less than this average annual earning.

With an average invested capital during the period 1921 to 1928, inclusive, of more than $9,000,000,000 the rate of return for the period from 1921 to 1928 was less than 2¼ per cent, and for the year 1930 with a larger invested capital it is conservatively estimated that the earnings of the oil industry will be less than 2 per cent.

Furthermore, the revenue derived from these taxes is not being used solely for highway construction and maintenance purposes and each year a larger diversion of the fund is being made to other purposes. The American motorist and the business men of the country interested in motor transportation as well as the representatives of the oil industry are entitled to a careful consideration of these facts by the legislatures of the various states of this country. The high rate of the tax and the diversion of funds are manifestly unfair.

The rate of the tax should not be increased as it is already excessive. Any effort to procure a larger return from this tax should be devoted to amendments of the various state laws in an endeavor to prevent evasions of payment.

Methods of Evading Tax

The following have been suggested as the principal methods of evading the payment of gasoline taxes:

(a) Tank car shipments across state boundary lines, exemption being claimed in the state where purchased and the tax not paid in the state where used or sold.

(b) Mixture of kerosene and distillates with natural gasoline and other mixtures.

(c) Failure to report all gasoline sold subject to the tax.

(d) Fraudulent claims of consumers for exemption or refund.

It is quite evident that in a large num-

(Continued on Page 128-D)

TO PERMIT CITY TAX

A bill has been introduced in the State Assembly of New York to amend the city home rule law so that cities can impose a city gasoline tax of not more than 1 cent a gallon. If the bill is favorably reported and passed the bill will make the proceeds of the tax applicable solely to expenditures for street openings and street improvements.

ROAD BUILDERS OPPOSE HIGHER GASOLINE TAXES

The United States Good Roads Association, with headquarters at Birmingham, Ala., is conducting a campaign in states whose legislatures are in session this year for enactment of bills designed to provide for maintenance of gasoline taxes at low rates and the application of gasoline tax revenues exclusively to roads and streets. The association also seeks by legislation to make it unlawful for cities and counties to impose an extra tax on gasoline and to insure uniform collections by having all gasoline taxes collected by the states.

The association adopted this resolution at its last convention:

"Believing that the users of the roads should pay for their construction and maintenance and that this burden should not be borne by adjoining property owners, we favor judicious application of the present gasoline and motor taxes, for our highway system only, and for no other purpose but building and maintenance of roads, and a refund to the farmers and property owners of all gasoline taxes used on farm, in pump stations, motor boats and trucks except where specifically spent in the improvement of roads. We also favor a refund by each state highway department of an adequate sum to the county authorities for the construction and maintenance of local lateral roads to the main highway."

LARGE GAIN IN CANADIAN MOTOR CAR REGISTRATION

Registration of motor vehicles in Canada during the year 1930 reached the highest figure in the history of the Dominion.

Despite the abnormally low sale of new cars, total registrations for 1930 amounted to 1,222,932, representing an increase over 1929 of 45,393 units. Of the total registrations 1,056,078 were passenger cars and 166,854 commercial cars.

Increases in both passenger and commercial car registrations were shown by eight out of nine provinces, the exception being Saskatchewan, where an apparent decrease of 1,309 units is shown on available figures. Of the eight provinces showing gains, Ontario heads the list with an increase of 22,068 registrations.

SINCLAIR SALESMEN MEET

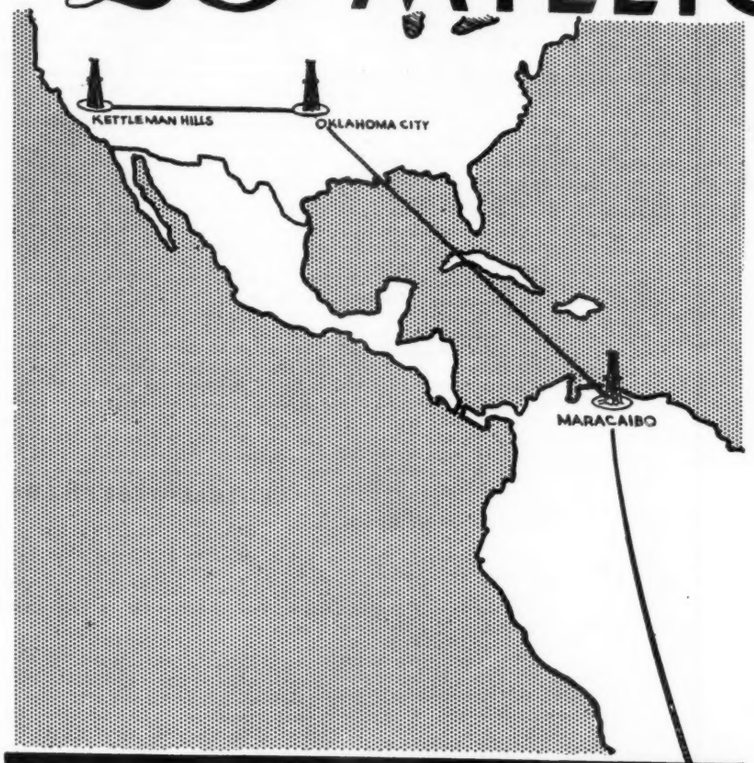
Several officials of the Sinclair interests attended the Southwest Conference of Salesmen of the Sinclair Refining Co. held last week in Fort Worth, Tex. The conference was in charge of W. T. Dinkins, vice president of the Sinclair Refining Co. in charge of the southwestern district.

J. W. Carnes, vice president in charge of sales; L. P. Lochridge, manager of lubricating departments; M. L. Gosney, assistant treasurer; G. French, assistant manager of motor oil sales; S. F. Lentz, assistant manager of industrial sales; C. M. Larson, chief engineer, and S. M. Morey, advertising manager, composed the New York officials who attended and spoke at the conference.

LARGE OIL BURNER MEET SEEN

Participation records will be broken at the Eighth Annual Convention and Oil Burner Show, April 13 to 18, in Philadelphia, when 80 manufacturers will be represented in the 125 exhibit booths of the exposition. The oil burner and accessories business experienced the best year of its history in 1930, the year which marked the opening to the public of the convention and display gates.

20 MILLION FEET



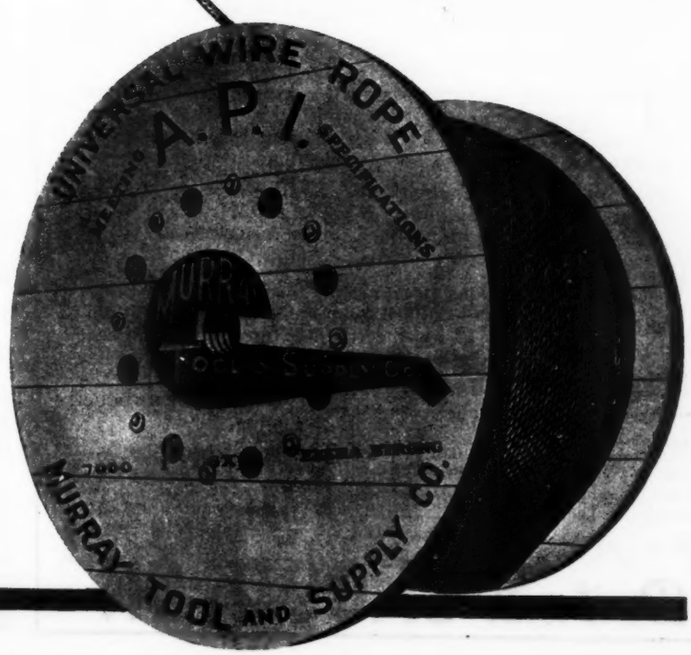
Kettleman Hills—Oklahoma City—Maracaibo, three great fields of oil—Each testing man's stamina and ingenuity before yielding up their treasure. Each approving or rejecting the equipment used to tap the pools of oil.

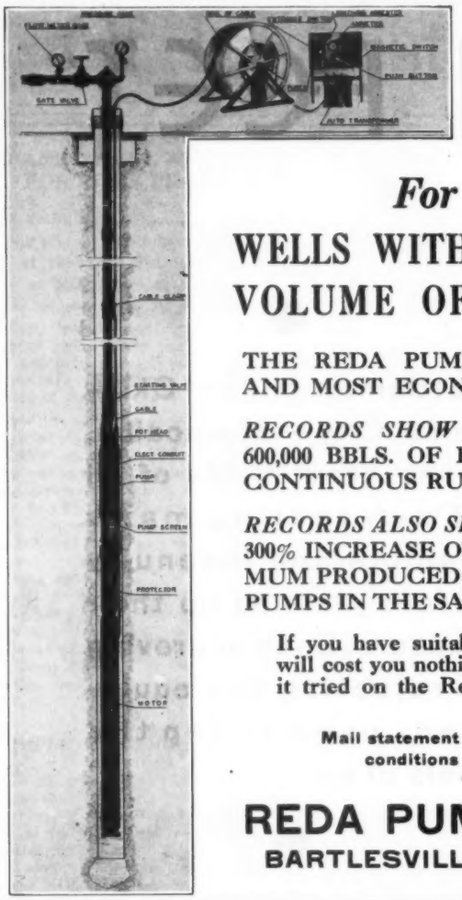
WIRE rope sufficient to tie these three great equipment-proving grounds together, has been sold by the Murray Tool and Supply Co.

Universal Wire Rope was given general acceptance in the great Oklahoma City Field; such approval is the surest guarantee of reliability, when buying a wire line.

Wherever you may be in the Mid-Continent Field you may secure Universal Wire Rope from a supply store operated by . . . . . .

MURRAY TOOL & SUPPLY COMPANY
CLEVELAND, OKLAHOMA





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Electrical Submergible

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WELLS WITH LARGE VOLUME OF FLUID

THE REDA PUMP IS BEST AND MOST ECONOMICAL.

RECORDS SHOW 200,000 TO 600,000 BBLS. OF FLUID PER CONTINUOUS RUN.

RECORDS ALSO SHOW 100 TO 300% INCREASE OVER MAXIMUM PRODUCED BY OTHER PUMPS IN THE SAME WELLS.

If you have suitable well it will cost you nothing to have it tried on the Reda Pump.

Mail statement of well conditions to

REDA PUMP CO.

BARTLESVILLE, OKLA.

THIS USEFUL PROTRACTOR

FINISHED HANDSOMELY IN POLISHED NICKEL

FREE!

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THIS handy accurate tool will come to you by return mail and *absolutely free*, provided only that you use the request coupon, and tell us in a supplementary letter where you have used Smooth-On and with what success.

The Smooth-On Handbook also will be sent unless you already have one, as your reference library is not complete without the valuable repair information this book contains.

Judicious use of Smooth-On is saving thousands of dollars for plant owners, and untold hours of hard dirty overtime work for the operating men. You overlook an opportunity if you do not avail yourself of its benefits.

SMOOTH-ON MFG. CO., Dept. 66,
570 Communipaw Ave., Jersey City, N. J.
Please send ☐ Protractor ☐ Smooth-On Handbook.
Name.....
Address.....
2-26-31

Get SMOOTH-ON *No. 1 in 1 or 5-lb cans, or 25 or 100-lb. kegs from your nearest dealer, or, if necessary, from us.*

Do it with SMOOTH-ON

FEWER TAX EVASIONS LEVY PROBLEM SOLUTION

(Continued from Page 128-B)

ber of states the practice of evading payment of the gasoline tax is widespread. Reports of evasions have been received from the following states, among numerous others: California, Illinois, Indiana, Louisiana, Mississippi, Oklahoma, Texas and Virginia.

In certain states the amount of evasion runs into very large figures and as the rate of the tax increases greater efforts are made to evade payment. That gasoline tax evasion is a fact and not a theory is demonstrated by the following excerpts from a few of the reports received from numerous sections of the country:

In Texas suits have recently been filed by the state authorities for the collection of delinquent gasoline taxes against a number of individuals and companies. In four of these cases the amounts involved aggregate more than $180,000.

Louisiana reports writs of attachment against certain companies for alleged failure to pay gasoline taxes.

The State of Kansas reports 28 cases as a partial list of dealers arrested and convicted for failure to make reports of gasoline received and to pay the state tax thereon. In all of these cases the dealers pleaded guilty to such charge.

The former state auditor of Indiana reports $115,000 collected in settlement of charges for alleged evasions of payment of gasoline tax.

Kentucky reports cases of dealers caught blending kerosene and natural gasoline, who were compelled to pay the tax.

California reports substantial evasions of payment, by means of (a) fictitious exports to adjoining states and to Mexico, (b) illegal tax refunds, and (c) the blending of kerosene distillate with casinghead gasoline. Also, that the gasoline taxes past due and unpaid amount to a very large sum.

An outside informant connected with the oil industry estimated the loss in revenue in his state by evasions of payment at nearly $2,000,000 annually.

Evasion Hurts Dealers

The act of evading payment of the gasoline tax in and of itself is bad enough. But it also seriously and directly affects legitimate dealers, who pay the tax, by permitting the tax evader to sell his products at cut prices and thus demoralize the market. All marketers of petroleum products owe to the public and the petroleum industry the duty of reporting to appropriate state authorities suspected evasions of the gasoline tax laws.

We believe that amendments of existing laws along the following lines would be very helpful:

(1) Requiring a satisfactory bond of at least $10,000 from all distributors and dealers.

(2) Appointment of a larger number of inspectors.

(3 Making all wilful violations a misdemeanor punishable by fine and imprisonment.

(4) Requiring reports by refineries and common carriers of all shipments of gasoline and motor fuels and reports by all dealers or dispositions of gasoline and motor fuels whether the tax is paid thereon or not.

(5) Making provision for the interchange of information as to shipments of gasoline and motor fuels among the tax officials of the several states.

(6) Extending the tax to cover all kinds and variety of motor fuels.

(7) Drastically curtailing the refund and exemption privileges.

Three-Cent Tax Suggested

Henry F. Long, commissioner of corporations and taxation for the commonwealth of Massachusetts and one of the foremost tax experts in the country, in a letter under date of December 2, 1930, to the American Petroleum Institute replying to an inquiry regarding tax evasions in his state, remarks in part as follows:

It seems to me that your association could accomplish a great deal if they could indicate what would be a fair tax per gallon on gasoline wherever purchased. * * * My own opinion in the matter is that the rate should not be more than 3 cents per gallon in any state in the Union, but in that I may be wrong. It might be that the gasoline excise near the field of production should carry a lower rate than one farther away or vice versa. If your association could give some attention to the accumulation of facts which would prompt a stabilized amount per gallon for excise I think we could have a good success.

As I look at the gasoline tax with most people urging this or that without any general economic background or any idea of the practical side of taxes, it is bound to break down because it is exactly like the real estate tax. Apparently so simple that everybody thinks they know all about it and it is quite in the nature of a free horse that may be ridden to death. * * *

If the gasoline tax or its equivalent is going to stay as I think is the case then it at least ought to be put on a reasonable basis. It does not occur to me as though it is on a reasonable basis and I do not see anything being done by a well recognized authority to prompt anything in the way of sensible gasoline tax legislation in any state of the Union.

We earnestly and in a spirit of fairness to the motoring public and the oil industry advocate amendments to prohibit evasion of payment, rather than increases in the rate of the gasoline tax laws of the states of this country.

CENTRAL WEST FIELDS

(Continued from Page 59)

block of leases has been taken in the northeast corner of the county, which may forecast some drilling in Nevins Township and possibly in the adjoining counties.

ILLINOIS

All areas of the Illinois Field are rather quiet at this time, as is usual at this season, there being but one completion reported, W. C. McBride, Inc.'s No. 1 in the SE cor. of the Fred Laughead farm, NW Section 3, Montgomery Township, Crawford County, which had an initial of 5 bbls. from a depth of 980 feet.

Robinson Oil Co. abandoned No. 1 Hattie E. Robinson farm, Section 15, Wabash Township, Wabash County.

Big Four Oil & Gas Co. drilled deeper No. 13 on the L. M. Sneed farm, SE Section 21, Dennison Township, Lawrence County, from the Kirkwood sand at 1,653 feet, where it produced for a great number of years, and before pulling it out concluded to drill to the McCloskey sand to a depth of 1,925 feet, which was dry, and the well has been abandoned. The Ohio Oil Co. abandoned No. 1 M. A. Lawson farm, SW Section 18, same township, which was drilled nearly 20 years ago. Same company abandoned No. 7 Phillip Mason farm, SW Section 4, Lawrence Township, same county. In Bridgeport Township, same county, the Ohio Oil Co. abandoned No. 22 W. E. Finley farm, Sections 7-18; Nos. 25, 28, 31 and 33 W. E. Finley farm, SE Section 7, and NW Section 17 and NE Section 18, same township, as well as No. 5 P. B. Finley farm, SE Section 8, and NE Section 17. Snowden & McSweeney abandoned No. 6 H. K. Sneed farm, NW Section 29, same township. Ohio Oil Co. abandoned No. 8 J. D. Madding farm, SW Section 30, Petty Township, Lawrence County.

CONCESSIONS IN BRAZIL

NEW YORK, Feb. 21.—The Brazilian Government has granted several concessions to search for gas and oil in the Amazonas State. Concessions have been granted to the Amazon Corp., the American Brazilian Exploration Corp., and the Canadian Amazon Co., Ltd., which will explore three zones situated on the Amazon, Silomeos, Jurua, Purus, and Negro Jupara Rivers.

Exploration is to be started within two years, concessions to run for 50 years. Cessation of work for eight consecutive months will result in the contract reverting to the government. The government will grant exemption from Federal import duties on equipment and also exemption from municipal taxes.

Oil-producing machinery demands *specialized* lubrication

Old-timers recall the days when oil-field machinery was so limited in amount and so simple in construction that two or three types of oil and grease were enough to lubricate them all.

Today, the tremendous variety, complexity and enlarged capacity of machinery demand a wider range of *specialized* lubricants to meet its many lubrication needs correctly.

THE VACUUM OIL COMPANY'S 65 years' experience in lubricating machinery all over the world in oil-fields, mines, factories and transportation, has accumulated what is probably the world's most complete knowledge of lubrication needs —and the world's most complete line of lubricants.

Greatest operating efficiency, and lowest repair and depreciation cost, demand that each one of your machines have the right lubricant applied in the right place, in the right way. Engineers throughout industry have found that correct lubrication usually costs less per year—because it pays extra dividends in larger production at lower total costs.

A Vacuum lubrication specialist, experienced in *your* field, will respond promptly to your request for further information.

On request we will send you, without obligation, one or all of these authoritative treatises on lubrication. You will find them useful in obtaining the maximum of lubrication efficiency in the operation of your plant.

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Lubricating Oils

The world's quality oils for machine lubrication

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Continuous Tooth Herringbone

GEARS

Add power, efficiency and operating economy to

OIL FIELD MACHINERY

Wherever oil flows, it takes power to help it flow into the channels of industry—power transmitted by the gears of some kind of machinery. In the field, along pipe lines, in refineries—even in the motor tank trucks—*gears* do the work of power transmission.

Machinery of the oil industry, as in any industry, will run smoother, quieter, with more power at less upkeep cost, equipped with OTTUMWA Sykes Generated Continuous Tooth Herringbone Gears.

They utilize the whole width of the Gear face for bearing surface

Affording continuous uninterrupted and complete transmission of every ounce of power. The continuous tooth herringbone gear has greater bearing surface for a given gear surface than any other type of gear, and also has the extra inherent strength that this shape of gear tooth provides.

Any Machine Superintendent, Plant Manager or Purchasing Agent will get valuable help and information from the OTTUMWA GEAR CATALOG.

OTTUMWA can furnish Spur or Herringbone Gears in any size up to 125-in. diameter, 24-in. face.

SPEED REDUCERS

The wholly enclosed speed reducer has superseded most other types of power transmission machinery. In Ottumwa Speed Reducers, a compactness is attained, along with greater load capacity because of using Sykes-generated continuous tooth herringbone gears and roller bearings.

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Gentlemen: Please send us, without obligation:

☐ Information on how Ottumwa Continuous Tooth Herringbone Gears can add to the efficiency of our _____ (State kind) _____ Machinery.
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☐ OTTUMWA GEAR CATALOG, Free.

Name _____

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City _____ State _____

OJ-2

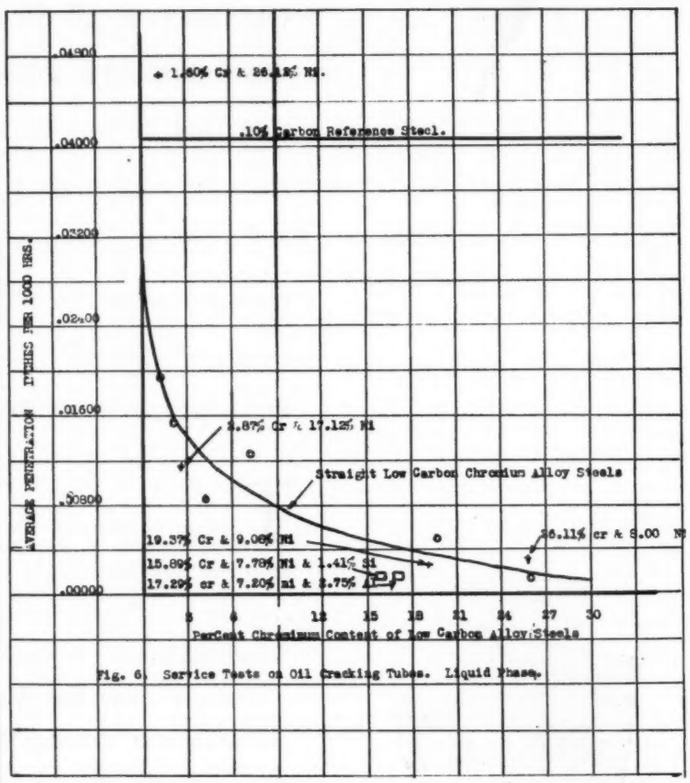
REVIEW OF PROGRESS IN PREVENTING CORROSION

(Continued from Page 24)

underwater corrosion oxygen is the determining factor. Bengough, Stuart and Lee have developed an oxygen absorption method accurate to within ±1 per cent. Forrest, Roetheli and Brown have also devised an accurate method based on the same principle. The method of measuring corrosion by the increase of resistivity of wires exposed to corrosive influences as developed by Hudson and Burns and Campbell is of special interest. For testing alloys in acid solutions, Huey at the DuPont Laboratories, uses a constant-boiling point solution of pure nitric acid equipped with a reflux condenser. These refinements have resulted in better reproducibility and more confidence in the results. The usefulness of the spray test has been increased by the use of calcium chloride as referred to above.

The testing of soils may be divided broadly into two groups, chemical analysis and electrical tests. The latter includes various methods of measuring earth resistivity or apparent resistivity under specified conditions, loss of weight tests and the study of long line currents. Various procedures have been followed. In one the soil is subjected to a constant potential difference of 1.4 volts and the resulting current measured after about 10 minutes or when it becomes stable. In another the average conductivity of the soil when subjected to a potential difference of 6 volts over a period of 24 hours is measured. Another measures the galvanic current between two dissimilar electrodes placed in the soil under test. A comparison of these various methods has shown that conductivity measurements of the soil give a fair relative index of the corrosivity of alkaline soils and of very corrosive acid soils.

The use of statistical analysis, particularly to evaluate the data of large scale tests has yielded information that would not have been apparent otherwise.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AVERAGE PENETRATION IN INCHES PER 1000 HRS.
1.60% Cr & 26.18% Ni.
.10% Carbon Reference Steel.
5.87% Cr & 17.12% Ni
Straight Low Carbon Chromium Alloy Steels
19.37% Cr & 9.08% Ni
15.89% Cr & 7.78% Ni & 1.41% Si
17.29% cr & 7.20% ni & 2.75% Mn
16.11% cr & 8.00 Ni
3 6 12 15 18 21 24 27 30
PerCent Chromium Content of Low Carbon Alloy Steels

Fig. 6. Service Tests on Oil Cracking Tubes. Liquid Phase.

Underwater Corrosion

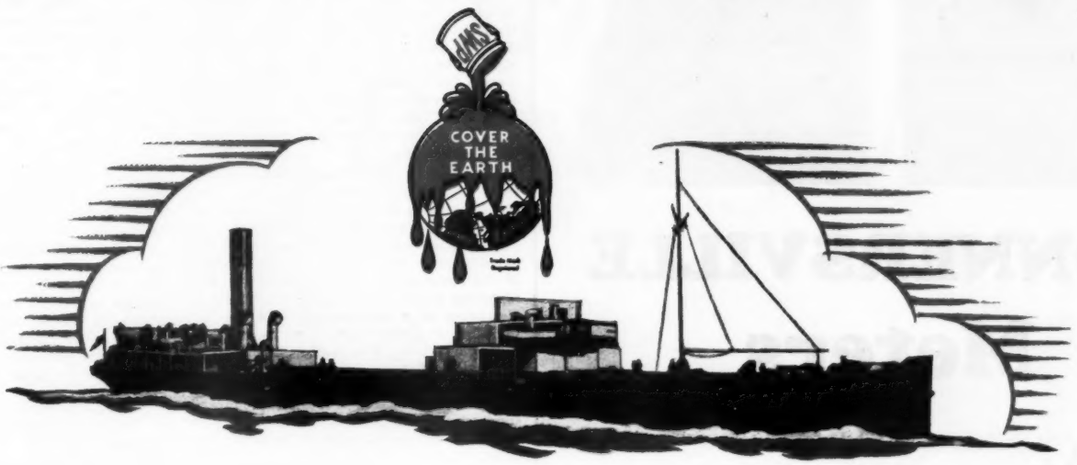
Industrial water engineers now recognize that water supplies require treatment to prevent corrosion as well as for hygenic reasons. Methods of analysis and expression of results are, however, not yet standardized with respect to the former problem. The rate of corrosion can only be predicted with rough approximation from the present system of industrial water analysis. A movement is now on foot in the A.S.T.M. to develop and standardize the methods of analysis of water for domestic and industrial uses. The mode of expression and interpretation of results should be defined with respect to corrosion and scale formation. This was done sometime ago in connection with hygenic analyses by the American Public Health Association.

Water supplies are in many localities becoming more corrosive both by pollution and by chemical treatment and filtration. Such treatment sometimes results in reduction of the ability of the water to form and lay down protective coatings on the metal. Water treatment is nevertheless desirable and necessary and will, no doubt, be extended in the future so, for that reason, supplementary measures should be taken to prevent serious damage from corrosion to piping and equipment. This problem is now well understood and economical means are being sought and applied by industrial water chemists to meet the situation. Lime and soda are usually employed for this purpose in industrial waters, the amount added depending upon the soluble inorganic material with which these reagents interact to form protective coatings to obstruct the process of corrosion.

Effective Protection

For certain kinds of domestic water, saline waters, waste mine waters, and chemical solutions, portland cement protection has proven effective. The water takes up free lime from the cement and consequently for a few months is rendered somewhat harder but this is not usually objectionable. A special aggregate mixture has been developed that reduces the amount of free lime. Nevertheless, after the free lime and other more soluble constituents are extracted and the cement becomes more porous it still protects the metals by maintaining an inert layer of oxygen-free water in contact with the metal. This is illustrated by some laboratory work done by our Mr. Chappell on the protective effect of layers of fine sand of different thicknesses as shown in Figure 5. Portland cement mixtures half an inch thick afford substantial protection

In oil tankers, too—



PETRO-SEAL—*the neutral separating seal*—protects both oil and metal

Ship and cargo are safeguarded from destructive effects of interior corrosion

Petro-Seal, the amazing new protective coating, applied to interiors of oil tankers, cars and storage tanks, stops corrosion losses and reduces equipment repairs.

You can literally make a "hold within a hold" for petroleum products and provide complete insulation against electrolysis with this new coating, impervious alike to petroleum or water.

Oil that is free from contamination at point of delivery brings the highest prices. Scale and rust left in empties, hastens further corrosion and lowers the value of the oil. The use of Petro-Seal prevents this, protects your profits, and reduces tank replacement costs.

This new protective coating has *proved* its ability to stand up and do a real job. Our technical staff is ready to advise you in the solution of your oil storage problems. You lose nothing by investigating. Send for complete details. THE SHERWIN-WILLIAMS CO., Cleveland, Ohio. The World's Largest Manufacturers of Protective Coatings.

SHERWIN-WILLIAMS
PETRO-SEAL

MAIL COUPON FOR INFORMATION

THE SHERWIN-WILLIAMS CO.,
Cleveland, Ohio.

Gentlemen: Please send me complete information on PETRO-SEAL.

Name .....

Company .....

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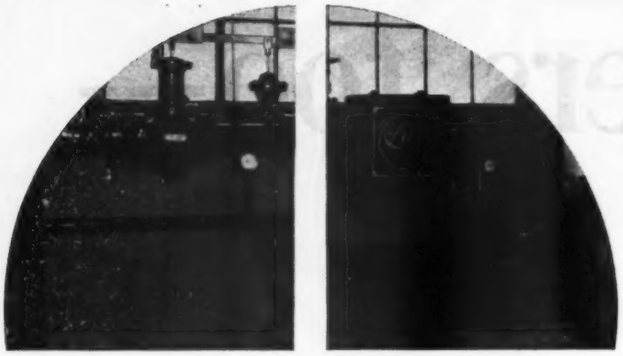

CONNERSVILLE Meters

CONNERSVILLE Meters give dependable readings on industrial and commercial gas installations.

They are recommended especially for steel mills, metal working factories, bakeries and other food products plants, and heating installations using larger volumes of gas.

Connersville Meters are dependably accurate, since *the displacement is a fixed, unchangeable volume.*

Connersville Meters are easy to install, since a single meter, with its one inlet and outlet connection can be used, even for the larger consumers.

Pressure loss is low, as Connersville Meters operate on very small differential pressures. They are easy to maintain in service as there are no delicate parts to require frequent adjustment.

Write for your copy of *Bulletin 4-D.* It will tell you more about the *dependable* service of Connersville Meters.

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CONNERSVILLE, INDIANA

20 North Wacker Drive, Chicago, Illinois
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420 Lexington Avenue, New York City

to the inside of hot water tanks and also give additional heat insulation.

Reconditioning of Water Pipes and Water Cooling Apparatus

The corrosion of water lines has become an acute problem in certain cities due to the causes mentioned above. In some cases, the damage from corrosion is due to restriction of flow from accumulations of rust, while in others, particularly in hot water lines, pipes corrode through and leak. To furnish a suitable pipe at reasonable cost has been our objective for a number of years. Pipe, lined with a corrosion-resistant cement, is available, the effectiveness of which under certain conditions has been demonstrated by experience.

In order to secure relief from the effects of corrosion, means of reconditioning have been developed by our research staff. The essential problems are first the removing of rust or carbonate scale accumulations; and second, the prevention of the recurrence of this condition. For removing these accumulations, methods of dissolving with hydrochloric acid plus an inhibitor to protect the pipe metal were first worked out. For badly corroded pipe a method of loosening and blowing out the rust with compressed air and an abrasive has lately been used with marked success. Steam has also been used successfully by some building superintendents.

To preserve the cleaned piping without removal from the building a method of lining with an especially resistant portland cement has been developed and applied by compressed air to the inside of pipe in several buildings, resulting in the stopping of small leaks, an ample flow of clean water, and, it is expected, a fairly permanent maintenance of service.

Steam Boiler Problems

Much progress in detail has been made in controlling corrosion in boilers, although no radically new developments have occurred recently.

Deaeration is now accepted as good practice as it has been found by experience to practically eliminate corrosion, except the type of intergranular attack which causes the so-called "embrittlement" of boiler plates in the most stressed parts below the water line. The design of deaerators has been simplified and no mill steam power plant is now considered to be properly equipped unless the free oxygen is removed by this or other means. Where deaeration external to the boiler is impracticable much of the free oxygen may be eliminated before the feed water mingles with the boiler water by first mixing the feed water with the steam.[1]

More complete elimination of oxygen is required as the pressures (and temperatures) are raised. In high-pressure boilers mechanical deaeration is sometimes supplemented by chemical treatment with ferrous hydroxide to remove the residual last trace of oxygen.

Boiler Embrittlement

The subject of boiler embrittlement has been summed up by F. G. Straub in Bulletin No. 216 just issued as a result of a five-year co-operative study on this subject at the University of Illinois, sponsored by the Utilities Research Commission including a number of public utilities companies. In this bulletin the following summary of conclusions is expressed as a result of their plant and laboratory investigations:

1. Embrittlement in boiler plate is caused by the combined action of stress and chemical attack. The stresses are inherent in the construction and operation of the boiler, while the chemical attack is caused by the presence of sodium hydroxide in the boiler water.

2. Certain methods of water treatment tend to convert some safe waters into the characteristic type which produces embrittlement.

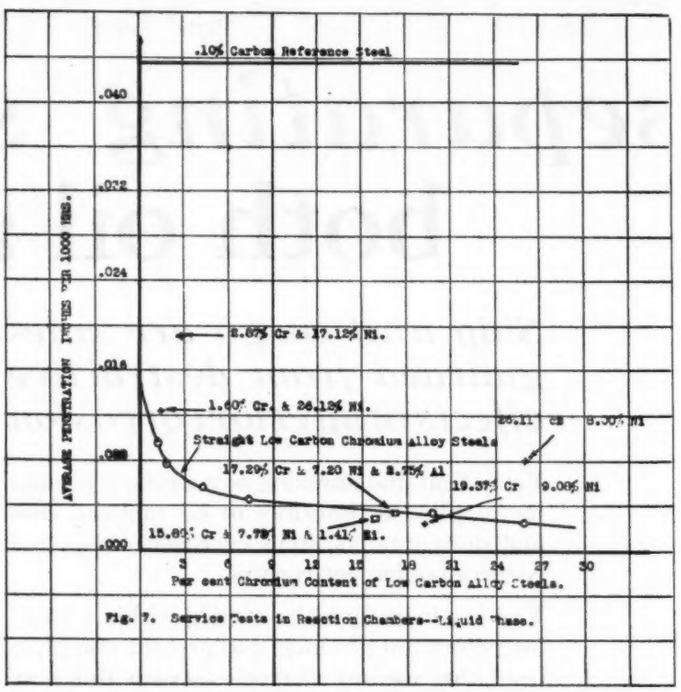
3. The presence of sodium sulphate in the boiler water tends to retard the embrittling effect of the sodium hydroxide, and, if in proper proportions, will stop it entirely.

4. The presence of phosphates, tannates, chromates, nitrates, acetates, etc., will also inhibit the embrittling action of caustic soda if these salts are present in the boiler water in proper amounts.

5. Methods for the introduction of some of the newer inhibiting agents to feed waters have been worked out, and are in operation in large power plants.

6. No steel suitable for boiler plate has been found which is resistant to the embrittling action of caustic soda.

Caustic soda in concentrations over 10 per cent has been shown to attack iron at high boiler temperatures, particularly when the stress in the riveted joints approaches the yield point. The shifting of the metallic grains breaks the Fe_3O_4 film formed by the caustic and the exposed grain boundaries thus become anodic to other parts of the surface. Intense local action results at concentrations that do not cause very marked general attack. This is aided by the reducing action of hydrogen on the oxides


.10% Carbon Reference Steel
.040
.032
.024
.016
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.000
AVERAGE PENETRATION IN INCHES PER 1000 HRS.
8.67% Cr & 17.12% Ni.
1.60% Cr. & 26.12% Ni.
Straight Low Carbon Chromium Alloy Steels
26.11 Cr 8.00% Ni
17.29% Cr & 7.20 Ni & 2.75% Al
19.39% Cr 9.00% Ni
15.69% Cr & 7.78% Ni & 1.41% Mn.
3 6 9 12 15 18 21 24 27 30
Per cent Chromium Content of Low Carbon Alloy Steels.

Fig. 7. Service Tests in Reaction Chambers--Liquid Phase.

[1]Speller, F. N.; "Corrosion—Causes and Prevention," Page 423.

Get the facts from Darling Users

Darling Gate Valves embrace the three essentials for producing field usage. On well or pipe line—in booster station or refinery, this valve can be counted upon to give satisfactory service. For the Darling is built with these three points first in mind.

First—a high standard of efficiency!

Second—a valve that wears long!

Third—a valve assuring easy operation!

You'll find Darling Gate Valves most efficient, dependable and economical. We'll stand on one trial.

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Williamsport, Pa.

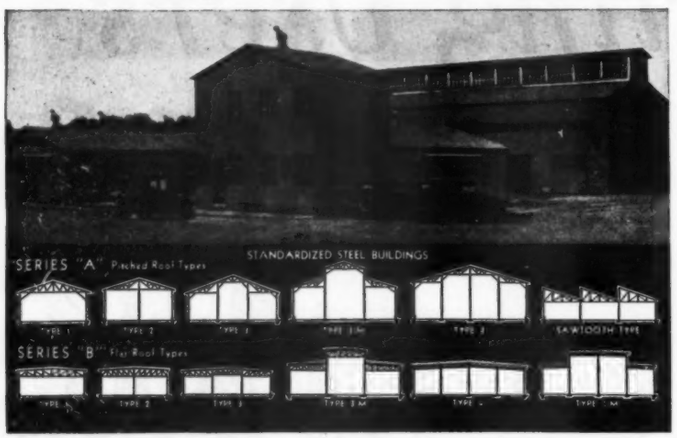
NEW YORK LOS ANGELES OKLAHOMA CITY HOUSTON

Mid-Continent Distributors:
Frick-Reid Supply Corp. International Supply Co.

Foreign Sales Manager: H. M. Hein, Room 1405, 152 West 42nd Street, New York, N. Y.

DARLING
GATE VALVES

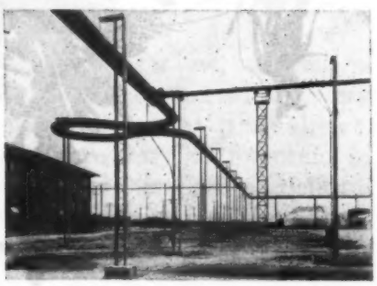
STANDARDIZED STEEL BUILDINGS for the OIL INDUSTRY



Modern, fireproof, efficient buildings, furnished in all types and sizes to meet every building requirement of the oil industry. Flat, pitched, monitor and sawtooth roofs. Fireproof materials throughout including Steel Doors, Steel Windows and insulated Steeldeck Roof.

Truscon will study your requirements, make recommendations and quote prices without obligation to you.

Pipe Line Supports



Built of Weltrus Steel Poles which combine great strength and rigidity with economy of steel. Furnished in any size and type to fit individual installation. Permanent, practical and economical. Write for suggestions and prices.

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

Warehouses and Offices in Principal Cities

TRUSCON

between the grains forming water, which helps to keep the metal in the fissure clean and open to further attack. There is also a strong potential (probably about 0.6 volts) between the clean metal under stress and Fe_2O_3. The process is somewhat analagous to corrosion fatigue.

Comprehensive Survey

Straub has in his recent work confirmed the sulphate-alkalinity inhibiting ratio recommended by the A.S.M.E. boiler code committee in 1926. The prime movers committee of the National Electric Light Association in its last report, June, 1930, presents a comprehensive summary of the boiler embrittlement problem as well as practical suggestions on the removal of oxygen to secure more complete elimination in feed water for boilers working at about 1,300 pounds per square inch. F. G. Straub and H. E. Hall have contributed detailed statements in this report from their studies of the embrittlement problem from different points of view that together constitute a very complete presentation of the problem and means of prevention. In connection with prevention, Hall concludes that:

"The key to satisfactory conditions in the boiler water lies in the maintenance therein of the necessary but no more than the necessary causticity. It is poor practice to permit high causticity to accumulate in the boiler water, then feed in sodium sulphate to maintain ratios, and thus introduce various troubles incidental to carry-over in the steam.

"With low causticity established, maintenance of the recommended sulphate-alkalinity ratios presents little, if any, difficulty.

"Clean evaporative surfaces simultaneous with low causticity are, in the authors' judgment, maintained with the greatest certainty by definite, phosphate control of the boiler water. The phosphate serves as a secondary line of defense to the sulphate in protection of the metal in the seams.

"Control of causticity concentration in the boiler water usually is obtained readily by use of a phosphate conditioning chemical of appropriate alkali-reducing capacity in the boiler water.

"In the case of boilers already installed, protective measures are limited to carefully controlled conditioning of boiler waters. If lucky, one will have the much greater assurance of safety that goes with inside caulking only.

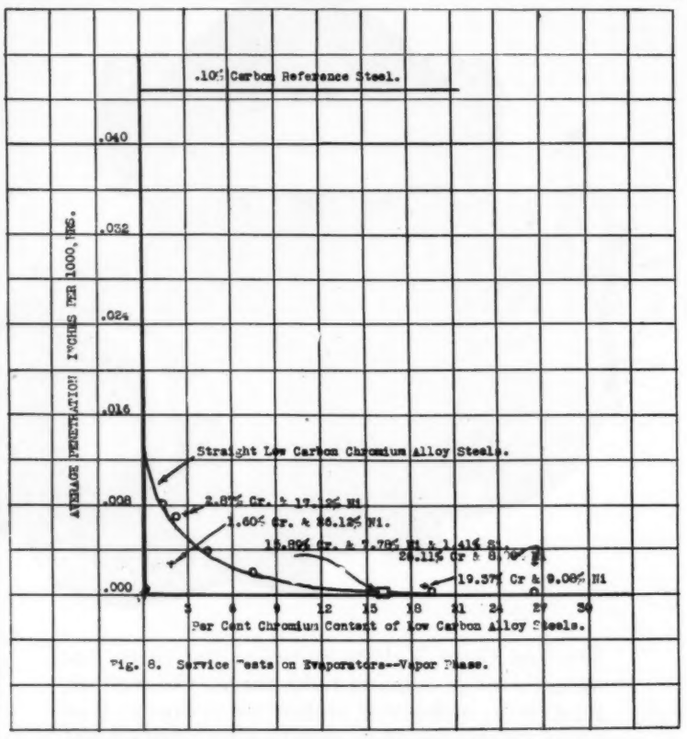
"In the case of installation of new boilers, the purchaser and manufacturer should co-operate in the maximum elimination therefrom of characteristics such as those already discussed which, in conjunction with improper water conditions, are most readily conducive to deterioration of metal.

"Inside caulking only is a factor of primary importance which should not be sacrificed to expediency in freeing the seam of leaks as operation starts."

In connection with boiler corrosion, it is important to know the pH value of the water at boiler temperatures and the rate of reactions at these temperatures. It is expected that some work will be started in the near future toward this and through the co-operation of several interested groups in this country.

Soil Corrosion

The study of soil corrosion has received considerable impetus in the last few years from two conferences on the subject held by the Bureau of Standards and from the progress made in co-operative investigations conducted with the American Petroleum Institute and the American Gas Association. The bureau now has 11 men including three research associates, paid by outside interests, working on various phases of this problem. The factors governing soil corrosion are so many and so complex that an adequate study of the subject is almost beyond the facilities of a single company or laboratory but is an ideal problem for co-operative effort.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.040
.032
.024
.016
.008
.000
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Straight Low Carbon Chromium Alloy Steels.
2.87% Cr. & 17.12% Ni
1.60% Cr. & 26.12% Ni.
19.37% Cr & 9.08% Ni
0 3 6 9 12 15 18 21 24 27 30
Per Cent Chromium Content of Low Carbon Alloy Steels.

Fig. 8. Service Tests on Evaporators--Vapor Phase.

The second conference on soil corrosion was held in Washington, D. C., at the Bureau of Standards in November, 1930. Thirty-two papers on the interpretation of soil corrosion data, the correlation of soil characteristics with corrosion, the effects of earth currents on pipe lines, the testing of soils, primers and pipe line coatings were discussed.

Main Conclusions

We would say that the main conclusions arrived at were:

1. There is apparently no one class of ferrous metal that is superior to others under all soil conditions. The average penetration in all soils is practically the same for each class of ferrous materials, that is, bessemer, open hearth steel, open hearth iron, wrought iron, etc. The Bureau of Standards' results in this respect were confirmed by other tests and experience reported at this meeting.

2. Variations in soil factors, physical and chemical, control the rate of corrosion. Serious damage from soil corrosion is confined to a very small percentage of the pipe in a line as a rule.

3. Several interesting short-time elec-

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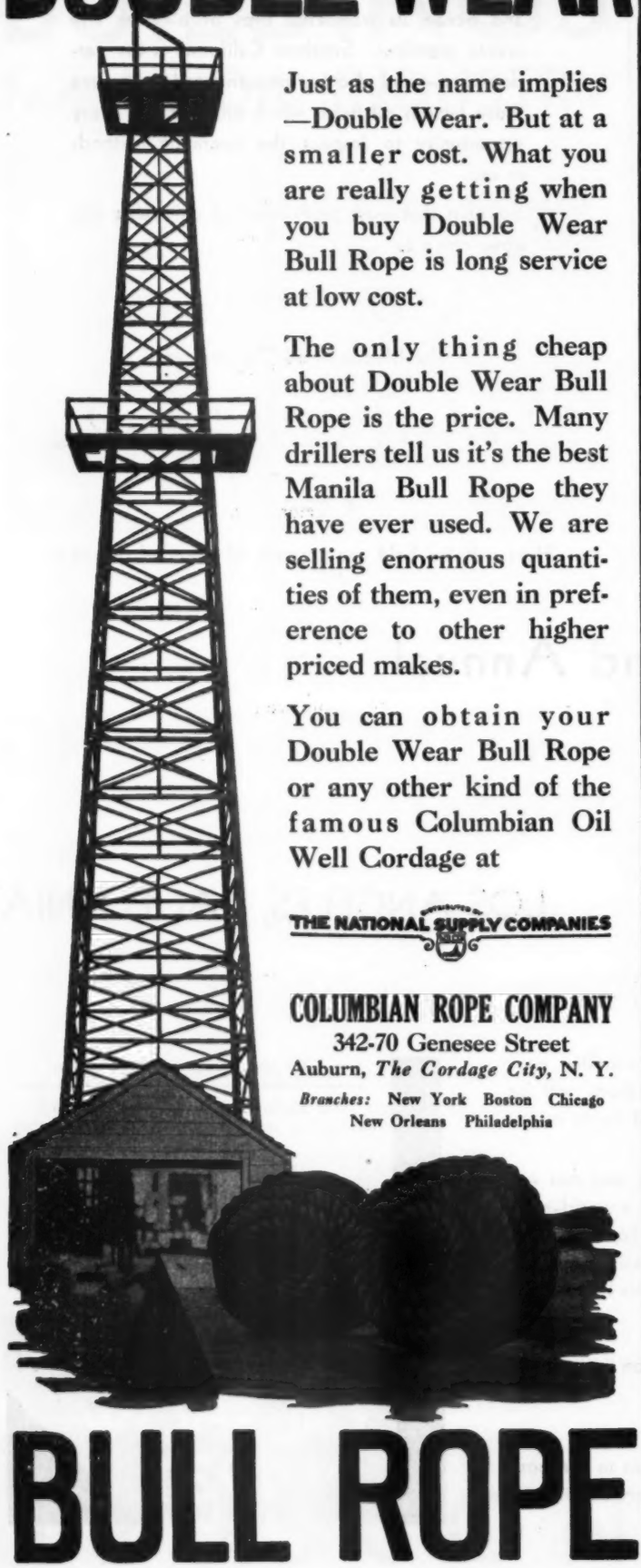

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trolytic tests have been tried in the attempt to correlate long-time corrosion with results of quick tests. The agreement has not been satisfactory but some progress has been made. A test is needed that will bring in more of the important factors.

4. The value of soil analysis has been tested for two years on one line with a predication efficiency of about 76 per cent. This is considered encouraging. More information is needed as to the factors in soil corrosion and their relative importance.

5. No uniform relation has been found between pipe line currents and corrosion of the pipe. However, a considerable discharge of current has in nearly every case been found associated with severe corrosion in the line.

6. Methods of testing adhesion and strength of bituminous coatings were described. The need of more development work and standardization of testing was apparent. The same applies to testing of shop coats and primers.

7. Distortion of bituminous coatings in some soils seems to vary with their penetration value and impermeability to water. No practical remedy has been found as yet, although sheathing of any kind that will prevent the coating contacting with the soil is giving promise of good results.

Investigation Results

The investigation organized by the Bureau of Standards in 1922 with the cooperation of the manufacturers of pipe and pipe coatings has been analyzed by one of the authors as follows:

The Bureau of Standards in 1922 selected 47 soils in which were buried sufficient specimens of commercial pipe materials to permit of the removal of a complete set every 2 years up to 10 years. Since that time, however, the range of materials has been extended so that it will be considerably past the 10-year period before the investigation is concluded. Protective coatings were also included. The fourth set has just been removed and the data will soon be published.

The study of the soil properties has yielded to date no definite correlation between corrosiveness and hydrogen-ion concentration, content of soluble salts, resistivity and other factors. The answer is undoubtedly a question of the combination of these factors and the physical characteristics of the soil rather than any one factor. The analysis of the rates of penetration of the various materials shows a decrease in the average rate (averages of all materials in all soils) from the two to the four-year period of about 40 per cent and from the four to the six-year period of about 16 per cent. The decrease in rate of penetration obtained from the Bureau of Standards' data falls close to that found on an extensive gas-distributing system over a period of 30 years.

Wrought Ferrous Materials

The corrosivities of the 47 soils varied from complete penetration of the pipe materials in four years to a negligible figure—the penetration was due, however, to soil corrosion from both sides in most cases. Averaging each class of material in all soils and comparing them with each other, we find no consistent differences in the rates of corrosion of the wrought ferrous materials.[2] This comparison of wrought ferrous metals is given in the table below:

	2-year results relative to open hearth steel	4-year results relative to open hearth steel	6-year results relative to open hearth steel
Bessemer steel.....	93.4	99.0	96.6
Open hearth iron...	94.9	97.2	98.8
Wrought iron.....	91.4	94.4	93.3
Open hearth steel..	100.0	100.0	100.0
Copper-bearing steel	112.2	111.2	106.6

While the Bureau of Standards has not as yet attempted to draw up a definite system of testing for the prediction of soil corrosivity, the information accumulated, judiciously applied, enables soils to be classified approximately as to their activity in this respect. Some oil companies and commercial laboratories have also been working on the problem so that an approximate soil corrosion survey is now practicable and is an important preliminary step to the installation of an oil or gas line. The installation of the Amarillo-Denver gas pipe line was preceded by a complete survey of the soils over its entire length. Protective coatings were applied on the basis of this survey. An inspection made two years later indicated an accuracy of predication of 76 per cent, which is considered satisfactory considering how little was known of the subject at that time.

Summary of Recent Work

The following brief summary of recent work on protective coatings centering at the Bureau of Standards was kindly prepared for us by A. Gordon Scott, research associate:

"The American Gas Association, in cooperation with the manufacturers of protective coatings and the Bureau of Standards, has undertaken an investigation of protective coatings. During the fall and winter of 1929 and 1930, 2,310 coated 2-foot sections of 2-inch pipe were buried. There are 42 coatings represented in this group. Four specimens of each coating were buried in each of 14 sites. These 14 sites comprise seven pairs of well-known soil conditions.

"Four hundred sixty-two of these specimens have recently been removed and are now being inspected and studied.

"The American Petroleum Institute has undertaken a similar though more extensive co-operative investigation. In these tests 2,208 specimens are being tested. Forty-six coatings are being tested in triplicate in 16 different soils. These specimens were prepared and buried during the past year (1930). In addition to the foregoing, approximately 13,500 feet of 19 of the above coatings are under test on actual operating oil lines in the above 16 sites. Testing coatings under the same conditions on both short sections of pipe and operating lines was arranged in order to determine the adequacy of the nipple tests.

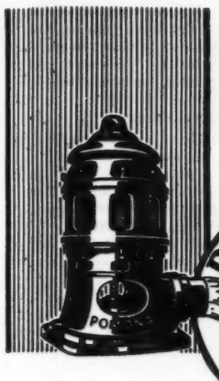
"During the past year (1930) the American Gas Association instigated an investigation of the protection of a long gas line, the first to be coated upon the results of a preliminary chemical analysis of the soils, and a topographical survey. The results of this investigation indicate the complete inadequacy of the cold paint type of application, and under the heavier textured soils, of the unreinforced hot bituminous coatings. It was concluded that substantially the same recommendation as to where and where not to protect would have resulted by a more simple survey using the methods of soil surveys and the use of the alkali bridge."

Corrosion in the Oil Industry

Losses directly and indirectly due to corrosion in the oil industry have been variously estimated from $125,000,000 annually and upwards (about equivalent to 1 cent per gallon of gasoline produced at present). The waste from this cause is particularly difficult to estimate, especially in production work, but no one questions that the total is a considerable sum. The American Petroleum Institute has recognized this as one of the major problems of the industry and has recently organized two main committees to work out the best means of prevention. One of these committees deals with transportation and production problems (with the aid of a full-time salaried technical assistant) and the other handles refinery and marine problems. Probably 150 or 200 men in the oil industry are putting most of their time on this work. Companies producing material used in the oil industry are probably doing an equal amount of work on this problem. The A.P.I. has already done great service so far in analyzing the problem in its various phases. This organization is at present the largest co-operative force engaged on the corrosion problem.

After a problem of this kind is thoroughly understood, its solution is usually not far away. However, only a small proportion of the preventable loss has been eliminated. Of course, the economic

[2]Complete data may be found in the Bureau of Standards Journal of Research, August, 1929.



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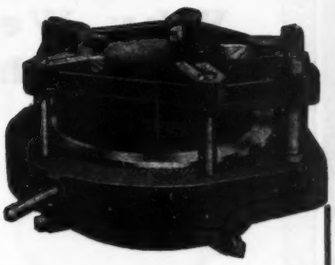

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side of the corrosion problem must always be kept in view.

Production Corrosion

In this field we find all classes of corrosion, atmospheric, soil, water and chemical attack of hydrogen sulphite in particular. In addition to the accelerating action of hydrogen sulphide with salt water in oil wells, corrosion is accelerated locally by the contact effect of dissimilar materials, including corrosion products and corrosion fatigue, that is, the combined action of stress and corrosion which is often illustrated in the rapid failure of sucker rods. Rotary drilling muds fortunately exercise an inhibiting effect as a rule so that little corrosion fatigue has been found in drill pipe. It is known that a finely divided inert material adsorbed on the surface of metal affords material protection as illustrated in Figure 5.

Production problems have been reviewed in a comprehensive manner by the A.P.I. subcommittee on production corrosion, December, 1930. The most serious damage to oil well equipment seems to result from sulphur compounds in salt water (not yet isolated). Protective coatings are generally out of the question in such cases, although it is possible that a durable coating with sufficient flexibility and resistance to abrasion to stand a reasonable amount of rough handling and strain without fracture will yet be developed. Such a protective coating, organic or inorganic, would be useful for the protection of sucker rods, tubing and casing. Such a coating would serve a useful purpose even after it had been partially destroyed as the corrosion would be less scattered and the material would suffer less loss in strength and be easier to recondition. Corrosion fatigue is quite common near the upset ends of sucker rods and this might be retarded by the application of a flexible coating. So there is every incentive for the search for better protection for steel under such conditions.

The addition of lime or sodium hydroxide in the wells may be warranted in severe cases, but as a rule the economic remedy will probably be found in the use of more resistant steels.

Service Tests

Service tests have shown little difference between the various grades of iron and steel tubing found on the market, although the addition of 0.75 to 1 per cent copper has increased the life of tubing 5 to 10 times in some locations where sulphuretted hydrogen is absent or very low.

The A.P.I. subcommittee on production corrosion (1930) has stated that black steel and wrought iron give almost equal service in most fields, that in most areas galvanized tubing is much better than plain steel or wrought iron and that other ferrous tubing materials such as ingot iron and copper-molybdenum iron have not evidenced any superiority over steel tubing. Evidently then for severe conditions we must look for a more resistant steel reasonable in cost. Both chromium and aluminum tend to build up surface films that are relatively stable when exposed to sulphuretted salt water. Steel with 5 per cent chromium is several times as durable as carbon steel in the presence of corrosive sulphur compounds in pressure stills. The addition of small amounts of aluminum with chromium in various proportions is being studied in steel for oil well equipment. The development of the best and most economical all-around low alloy steel for such service will require considerable co-operative field work between manufacturers and consumers. For economic reasons such an alloy should be standardized after sufficient preliminary work has been done. Low alloy steels have received considerable attention in the development of high tensile casing and drill pipe with marked improvements. It now appears that the question of additional durability must be given more consideration in addition to the physical requirements for casing, tubing and other equipment in the fields where severe corrosion prevails. Service conditions vary so widely between different fields and in different parts of the same field that the problem is not an easy one to solve. Hot galvanizing is often worth while, especially when applied on copper steel and should be more generally tried. Portland cement lining for pipe has given good results in gathering lines in Indiana for two years, where there is considerable sulphuretted salt water.

Refinery Corrosion

These problems have also been analyzed in more detail by the A.P.I. committee during the past year or two. These may be generaly divided into (1) low temperature and (2) high temperature corrosion problems. The large quantities of oil handled often result in considerable wastage of metal even when the specific rate of corrosion is comparatively low.

Low temperature effects—In distillation apparatus hydrochloric acid from decomposition of calcium and magnesium chlorides in the water is mainly responsible for damage to condensers and other equipment in the low temperature range. This action is accelerated when hydrogen sulphide is present. Ammonia is the most effective neutralizing reagent under these conditions. Admiralty metal offers good resistance but neutralization is also required in many cases even when such alloys are used. Sometimes steel condenser tubes will give good service with neutralization. More expensive cast iron with considerable nickel and chromium has given promising results and may be found economical for use in valves and fittings. The action varies so much in plants operating with different crudes and under different conditions that no general rule can be laid down. The selection of the most economical means of protection in refinery operation is a fine problem in anticorrosion engineering calling for skillful experimentation and use of all that can be learned about the many factors involved.

When cooling water is recirculated in condensers, corrosion may be inhibited by the use of sodium dichromate to which a smaller percentage of sodium phosphate or sodium silicate may be added to advantage. The amount required depends mainly on the chloride content and temperature of the water and will have to be determined for each case, but the treatment is usually economical and might be more generally practiced. The cost for fairly pure water is about $250 per 1,000,000 gallons of water per year on the average. When the cooling water is run to waste or reducing reagents are present, chromate treatment would, of course, be economical or impracticable but partial protection may be obtained by the addition of lime when the composition of the water lends itself to formation of protective coatings.

Heat insulation by excessive deposit of scale and rust in cooling systems is the source of considerable loss and inefficiency in operation. These materials may be removed from the system by dilute warm hydrochloric acid carrying a suitable inhibitor to prevent the acid from attacking the metal. Inhibitors of this type are commonly used in acid pickling; several suitable compounds of this type are available on the market.

High temperature wastage from corrosion is mostly caused by oxidation of the metal on the fire side and action of sulphur compounds (hydrogen sulphide and naphthenic acids) in the crude oil.

No economical and practical method has been developed so far for the removal of sulphur. The remedial measures that have proved effective are:

1. Neutralizing with lime.
2. Protective coatings (metallic and nonmetallic). Lining reaction chambers with portland cement concrete or other silicious material has proven effective.
3. Use of thicker metal.
4. Substituting a more resistant metal such as the well-known 18-8 chrome-nickel steel. (This has also been used as a liner.)

Before adopting a neutralizing treatment it is desirable to consider the possible detrimental effect of this material on the residual products. With some high sulphur crudes a penetration of 1 inch per year has been recorded in some parts of the equipment in which case neutralization must be employed.

It is well known that much work has

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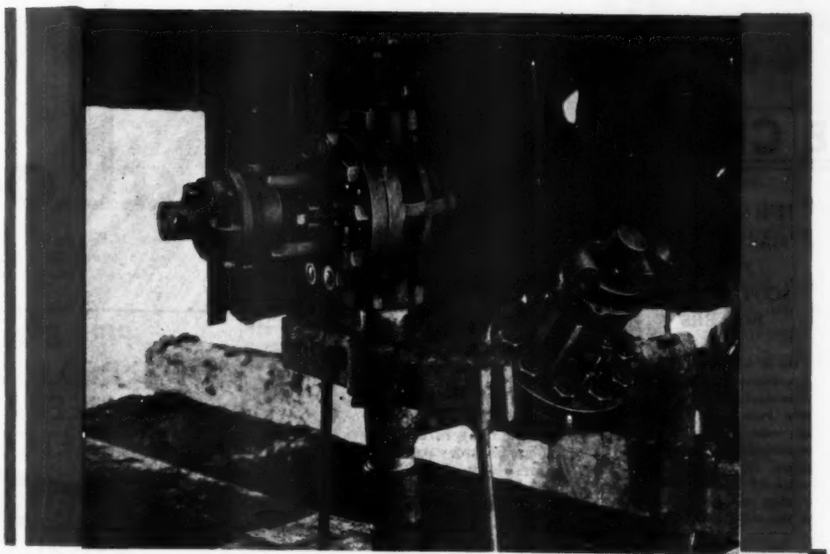

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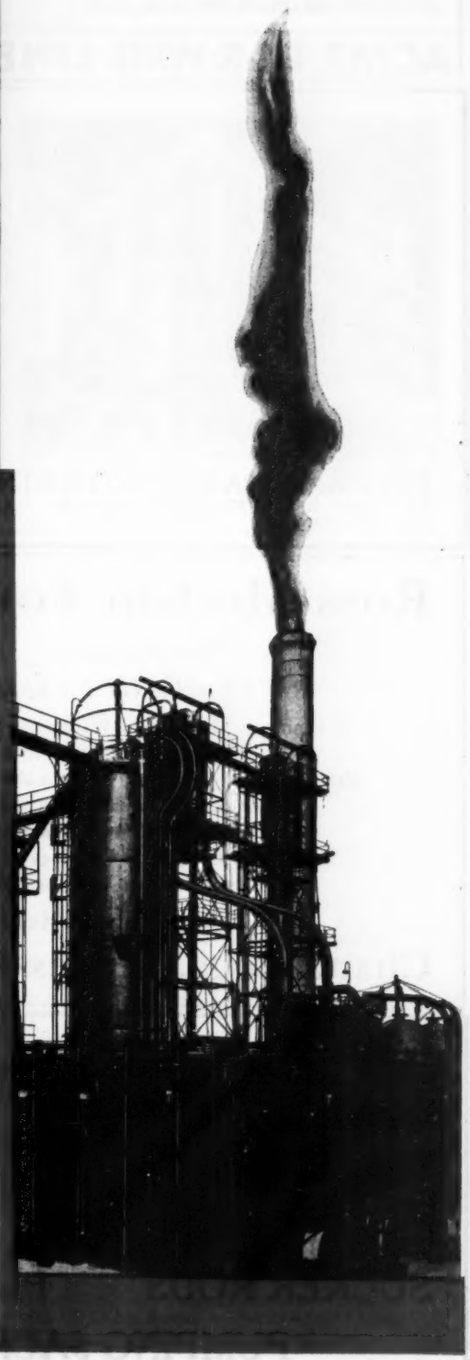

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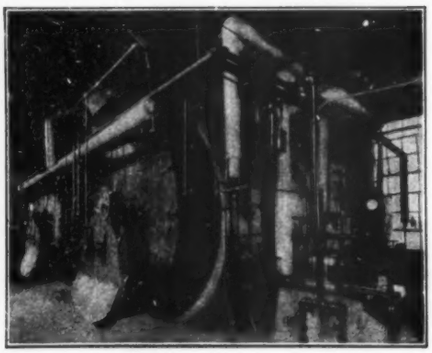

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been done on corrosion and heat-resisting metals during the past few years. A summary of some of the results of corrosion tests on a series of small chromium and chromium-nickel steel heats prepared in the National Tube Co. laboratory are shown in Figures 6, 7 and 8. The tests in oil refineries were carried out by eight co-operating oil companies.

The general conclusions drawn from these tests are:

1. The relative corrosion resistant properties of metals exposed to oil refining conditions may be determined approximately by exposure to hydrogen sulphide and direct oxidation at service temperatures.

2. The resistance to this type of corrosion increases with chromium contents up to a certain point. This is particularly noticeable above 4 per cent chromium and is consistent with experience in service.

3. While nickel is necessary to stabilize the iron at high temperatures it sometimes reduces the resistance to corrosion.

4. The effect of the addition of silicon, aluminum, tungsten and some other elements on the 18-8 steel for cracking tube service is being studied by further tests now under way.

Strength and Ductility

Physical tests made before and after the test pieces were subjected to elevated temperatures with and without corrosion indicate considerable difference in strength and ductility in some of these alloys and little change in others. Low carbon 18-8 chrome-nickel steel was found stable at cracking temperatures under 900° F. and under laboratory oxidation tests at 1,275° F. for 6½ weeks. During the past year it has given excellent service, probably due to closer regulation of the still temperatures.

The changes in physical properties that occur at high temperatures are due mainly to the migration of chromium carbide (Cr_4C) to the grain boundaries and changes in the metal from the austenitic to ferritic condition. These processes may in time produce changes in ductility, strength and resistance to corrosion. The nature and characteristics of these useful alloys of steel have been clearly described by Bain.

During the past year considerable work has been done on factors which retard changes in structure of these metals that tend to take place at temperatures between 1,000° and 1,400° F. Nickel is an efficient stabilizer of austenite — 8 per cent has been found sufficient for most purposes. Tungsten and several other elements tend to prevent the segregation of Cr_4C to the grain boundaries which impoverishes the surrounding areas in chromium. The phenomena of metallic stability and stabilization in this range of temperatures are being investigated in detail in the United States Steel Corp. research laboratory and other laboratories with promising results.

The well-known 18-8 alloy with carbon under 0.10 per cent is very resistant to corrosion of sulphur compounds and has a creep value at 1,200° F. of about 9,000 pounds per square inch, after water quenching from 2,100° F. based on 1 per cent elongation in 10,000 hours or 6,000 pounds for 0.1 per cent in 10,000 hours —about 10 times that of ordinary carbon steel. High "creep value" and permanence of physical properties are recognized as more important for high temperature service than resistance to corrosion. Oil refinery engineers report that the ordinary 18-8 steel has been used in regular service for over one year at tube temperatures up to 1,200° F. without material corrosion or impairment in physical properties.

Much of the wastage at the ends of still tubes is due to erosion. This can be reduced by rolling ferrules made of 18-8 steel into the tube ends after the tubes have been rolled into the headers. Free flow headers also reduce turbulent flow and erosion.

Refinery corrosion is so variable that preliminary tests are usually necessary as a guide in selecting the most economical

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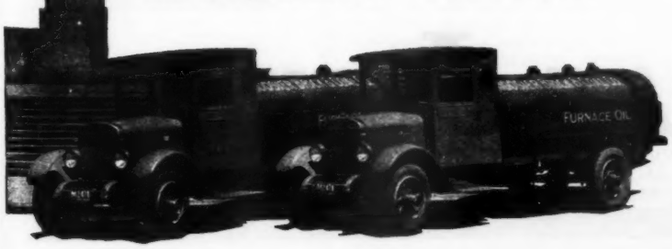

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material. The A.P.I. standard method of testing should be followed.

Three types of seamless steel tubes are now available for pressure stills: (a) Ordinary carbon steel of two grades (basic open hearth and electric furnace steel); (b) the 5 per cent chromium type; (c) the low carbon chromium-nickel, 18-8 alloy.

Summary

Organized co-operative work on corrosion has increased considerably both here and abroad during the past five years. It is still easier to enumerate the problems to be solved than the work already accomplished but it may be encouraging to review briefly the large savings that have been effected so far.

1. The life of steel exposed to atmospheric corrosion out of doors has been increased from two to five times by the addition of 0.25 per cent copper at an average increase in cost of $3 per ton (about 5 per cent).

2. Steam boiler and hot water piping corrosion in large stationary plants and even in locomotives may now be practically eliminated or kept under control by efficient deaeration and water conditioning.

3. Corrosion from refrigerator brine and in circulating water systems has been brought under close control by the proper use of sodium dichromate and other film-forming inhibitors at a very small cost, compared with the large annual saving of equipment.

4. Much has been accomplished toward a better understanding of the complicated soil corrosion problem and toward the manufacture and application of more durable coatings for use underground.

5. Better paints and lacquers have been one of the most notable achievements of the past few years. About $100,000,000 is spent annually on coating materials for use out of doors. Recent developments in the manufacture of synthetic resins promise to give new coatings that are tough and resistant to many chemicals and yet not out of reach in price.

6. Protective measures have proven to be of vital importance as affecting profits in oil refining. New resistant alloys, chemical treatment of the crude oil and protective coatings have each contributed their share. The "corrosion engineer" has done no better work anywhere than with the difficult problems of the oil refineries. For instance, the tenth report of the A.P.I. committee (25) states that a net saving of $24,160 per annum was obtained on a 10,000-bbl. still by neutralization with ammonia and lime.

Altogether, looking backward, we have much reason to be encouraged, for waste is always a liability and its elimination often means the difference between loss and profit in operation.

NEW EDITION OF LAHEE'S "FIELD GEOLOGY" IS OUT

The third edition of "Field Geology," by Dr. Frederic H. Lahee, chief geologist of the Sun Oil Co. and formerly assistant professor of geology in the Massachusetts Institute of Technology, brings up to date what long has been recognized as a standard work on this subject. Since the second edition was published in 1923 several methods of scientific research in structural geology have undergone remarkable development. These include the gravimetric, seismic, magnetometric and electric methods of exploration; micropaleontology; chemical analysis of subsurface waters for structural interpretation; measurement and interpretation of geothermal gradients in relation to geologic structure; surveying of deep boreholes for correct interpretation of subsurface structure, and airplane mapping of geologic terranes and structures. These and other points concerning which there has been advancement are treated fully by Doctor Lahee.

New material has been added to the chapters on "Tilted and Folded Strata," "Fractures and Fracture Structures" and "Geologic Computations." The bibliography has been enlarged greatly. The McGraw-Hill Book Co., New York, publishes the book, the price of which is $5.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Report for Month of December

Runs

	Month (bbls.)	Dly. av. (bbls.)
Prairie P. L. Co.	1,271,000	41,000
Gulf P. L. Co.	1,222,002	39,419
Texas P. L. Co.	679,782	21,929
Magnolia P. L. Co.	1,626,261	52,456
Empire P. L. Co.	1,900,653	61,311
Cosden P. L. Co.	741,349	23,911
Sinclair P. L. Co.	3,007,000	97,000
Oklahoma P. L. Co.	2,260,753	72,605
Other lines	5,543,000	178,800
Total December	18,247,629	588,633
Total November	18,236,190	611,206
Difference	88,561	22,573

Shipments

Prairie P. L. Co.	1,994,337	64,335
Gulf P. L. Co.	276,301	8,913
Texas P. L. Co.	1,037,027	33,453
Magnolia P. L. Co.	1,692,340	54,592
Empire P. L. Co.	1,768,811	57,058
Cosden P. L. Co.	508,332	16,398
Stanolind P. L. Co.	2,957,681	95,409
Oklahoma P. L. Co.	2,364,071	76,261
Other lines	5,301,000	171,000
Total December	17,899,960	577,419
Total November	22,032,627	710,729
Difference	413,667	133,310

Stocks

Prairie O. & G. Co.*	38,358,000
Gulf P. L.-Gypsy Oil Co.	8,401,850
The Texas Company	3,489,849
Magnolia Petroleum Co.	5,766,152
Empire P. L. Co.	5,300,761
Mid-Continent Pet. Corp.	4,286,897
Sinclair Crude Oil Pur. Co.*	15,500,000
Oklahoma P. L. Co.	2,758,031
Carter Oil Co.	10,069,192
Other lines*	22,885,000
Total December	119,753,742
Total November	120,275,702
Difference	521,960

*Estimated. Prairie and Stanolind shipments include Texas oil.

EASTERN PIPE LINE REPORT FOR DECEMBER
Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for November and December:

	Nov.,'30	Dec.,'30
Nat. Transit	104,496.20	110,146.31
S.W. Pa. P. L.	71,488.99	72,641.58
Eureka P. L.	272,972.79	289,000.11
Buckeye P. L. (Macksburg)	252,767.82	235,469.03
Buckeye P. L. (Cleveland)	9,244.34	11,757.62
Buckeye P. L. (Lima, etc.)	72,795.02	82,264.67
Indiana P. L.	3,171.88	3,242.37
Cumberland P. L.	157,587.04	173,692.00
N. Y. Transit	28,186.00	28,548.26
Tide Water P. L.	22,612.52	27,349.70
Pure Oil	190,625.17	204,537.02
Stoll Oil Ref.	27,202.29	14,373.02
Bradford Tran.	215,826.43	219,175.02
East Gulf Oil	.....	7,156.40
Total	1,569,979.51	1,672,984.81
Daily average	52,332.65	53,999.19

Note—Indian Refining Co. had other receipts of 265,208.78 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov., '30	Dec., '30
Nat. Transit	402,322.28	418,614.13
S.W. Pa. P. L.	242,629.09	243,352.43
Eureka P. L.	192,900.15	168,939.44
Buckeye P. L. (Macksburg)	246,434.15	247,581.49
Buckeye P. L. (Cleveland)	1,949.80	1,464.51
Buckeye P. L. (Lima, etc.)	1,138,273.04	1,063,204.74
Indiana P. L.	360,294.62	387,189.39
Cumberland P. L.	96,581.63	129,255.53
Southern P. L.	34,921.19	27,773.50
N. Y. Transit	132,392.43	139,599.54
Northern P. L.	69,332.33	78,349.64
Tide Water P. L.	164,443.71	259,965.20
Pure Oil	295,355.25	69,124.29
Indian Ref.	249,600.16	280,245.79
Bradford Tran.	356,796.37	373,855.08
Tuscarora Oil	342,813.68	369,139.62
East Gulf Oil	.....	5,397.60
Total	4,399,141.89	4,413,056.40
Daily average	146,638.06	143,001.82

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of November and December:

	Nov., '30	Dec., '30
Nat. Transit	823,883.64	796,609.10
S. W. Pa. P. L.	432,055.87	444,175.42
Eureka P. L.	1,501,400.77	1,500,235.43
Buckeye P. L. (Macksburg)	547,588.35	643,952.78
Buckeye P. L. (Cleveland)	43,726.09	37,246.45
Buckeye P. L. (Lima, etc.)	4,632,221.25	4,424,779.57
Indiana P. L.	748,856.72	537,459.89
Cumberland P. L.	567,723.01	592,621.01
Southern P. L.	315,451.62	292,250.09
N. Y. Transit	136,550.60	140,232.95
Northern P. L.	508,980.54	515,798.08
Tidewater P. L.	976,186.74	1,049,178.91
Pure Oil	332,491.81	467,768.78
Indian Ref.	71,646.44	55,677.44
Tuscarora	16,477.12	15,326.72
Bradford Trans.	216,140.95	183,944.67
East Gulf	.....	4,696.51
Total	11,851,380.92	11,751,952.41
Decrease	586,174.95	99,428.51

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of November and December, showing gross stocks of the above fields:

	Nov., '30	Dec., '30
Pennsylvania	3,970,186.37	3,950,317.59
Lima	752,285.03	757,684.69
Kentucky	636,748.00	643,036.25
Mid-Continent	6,155,312.11	5,903,435.98
Illinois	24,171.92	40,169.01
Michigan	322,677.49	456,808.89
Total	11,851,380.92	11,751,952.41

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1927	1928	1929	1930
Jan.	56,209	52,904	51,749	75,987
Feb.	61,398	57,003	51,833	79,256
Mar.	63,247	57,485	54,252	76,683
April	60,927	56,812	58,444	84,536
May	60,284	62,067	59,902	80,548
June	62,757	58,230	58,833	75,430
July	58,674	57,144	66,087	69,921
Aug.	60,870	57,745	66,087	54,291
Sept.	60,285	53,487	67,315	56,595
Oct.	147,080	58,100	76,093	58,179
Nov.	57,275	53,865	74,831	52,333
Dec.	53,089	52,025	74,561	52,999

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four yeras:

	1927	1928	1929	1930
Jan.	141,227	146,465	165,721	217,423
Feb.	138,534	167,368	159,387	224,355
Mar.	133,777	158,883	161,474	228,846
April	140,227	172,935	169,787	241,845
May	144,594	180,559	184,281	248,283
June	149,772	188,024	185,404	234,401
July	151,850	189,470	194,768	207,094
Aug.	138,653	192,853	184,946	205,506
Sept.	144,213	194,138	201,214	193,999
Oct.	147,036	176,000	191,367	157,675
Nov.	159,975	176,898	202,742	146,870
Dec.	144,504	173,572	186,287	143,001

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1928	1929	1930
Jan.	12,276,710	7,596,564	13,230,045
Feb.	12,180,419	6,733,835	12,991,567
Mar.	12,339,725	9,002,058	13,247,217
April	11,740,125	8,978,172	13,223,961
May	11,602,465	8,903,500	13,053,953
June	11,287,678	8,921,275	13,206,855
July	10,819,231	9,211,595	13,260,562
Aug.	10,236,743	9,440,643	13,047,051
Sept.	9,660,910	9,443,067	12,813,018
Oct.	9,229,709	9,441,101	12,437,555
Nov.	8,366,553	9,868,538	11,851,380
Dec.	7,539,555	11,253,953	11,751,952

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec. 31	2,097,628.16
Runs from wells	429,069.43
Other receipts	212,050.65
Regular deliveries	353,646.34
Other deliveries	232,421.81

The amount of Illinois oil run by the Tidewater Pipe Co. in December was 27,-349.30 bbls. Deliveries were 10,151.21 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1930—	Runs	Deliveries
December	239,399.95	262,719.53
1929—		
February	617,320.17	593,287.70
March	728,319.67	586,049.66
April	615,374.27	654,297.94
May	608,981.60	673,812.83
June	668,464.70	618,845.97
July	611,106.79	626,159.44
August	626,351.99	746,435.06
September	582,467.86	669,947.73
October	622,302.83	558,558.68
November	545,198.75	427,064.63
December	548,924.41	489,368.31
1930—		
January	543,387.95	496,293.91
February	548,416.44	414,536.69
March	631,944.49	469,119.53
April	530,974.22	509,264.66
May	605,147.37	504,069.84
June	572,622.57	488,658.31
July	604,539.54	388,454.47
August	594,642.12	375,742.43
September	457,001.11	371,691.63
October	478,442.12	330,688.72
November	239,399.95	363,719.55

Tidewater Pipe Co., Ltd., also delivered in December 95,661.64 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	18,484	1,936	34,257	22,322	9,516	86,516	.....	.....	.....	.....	2,258	88,774
February	7,678	.....	24,714	14,321	5,000	51,714	.....	.....	.....	.....	2,607	54,321
March	10,548	3,065	28,871	8,774	22,484	73,742	.....	.....	.....	.....	805	74,548
April	7,767	.....	14,368	11,600	7,432	41,167	.....	.....	.....	.....	7,600	48,767
May	5,194	8,451	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	9,300	.....	33,933	20,767	2,333	66,333	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	32,968	21,286	5,256	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	3,433	64,700
October	3,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,267	6,223	32,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
January	21,161	18,678	134,581	38,677	43,806	248,903	4,322	6,453	.....	548	11,323	260,226
February	24,500	14,714	147,357	36,036	39,786	262,933	2,821	11,072	3,500	1,964	19,357	281,750
March	28,356	4,329	151,806	36,645	34,905	255,548	4,323	11,645	839	2,419	19,226	274,774
April	31,400	8,923	123,500	40,433	19,434	223,700	.....	7,400	2,433	4,167	14,000	237,700
May	24,129	9,322	174,194	39,291	28,226	275,161	5,194	11,548	2,935	1,323	24,000	299,161
June	51,533	15,647	121,067	45,033	25,033	258,332	4,413	17,367	2,167	1,333	25,300	283,663
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	3,387	19,323	299,903
August	29,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	28,467	8,533	156,933	34,500	25,567	253,400	6,433	12,224	.....	3,800	22,457	280,857
October	19,539	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,548	18,451	258,548
November	39,633	35,900	124,533	36,467	24,667	261,200	3,467	7,366	.....	1,767	11,600	272,800
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS (Revised)

(In Barrels of 42 gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	21,983,242	20,892,984	25,284,352	3,273,197	1,817,685	1,780,751	2,151,090	4,113,000	81,306 201
	Daily average	709,137	671,064	815,624	105,587	58,635	57,444	69,390	132,678	2,619,558
February:	Month	20,855,660	17,977,624	23,314,637	2,965,704	1,608,376	1,738,250	2,027,984	3,963,000	74,451,235
	Daily average	745,916	642,058	832,669	105,918	57,442	62,080	72,428	141,536	2,660,044
March:	Month	19,699,979	19,115,406	25,503,082	3,504,295	1,817,871	1,943,93a	2,327,028	4,233,000	78,143,699
	Daily average	635,483	616,626	822,679	113,045	58,641	62,675	75,388	136,161	2,520,764
April:	Month	18,768,743	19,541,310	24,799,763	3,734,253	1,724,450	1,909,552	2,334,810	4,257,000	77,069,891
	Daily average	625,625	651,377	826,659	124,475	57,482	63,652	77,827	141,900	2,568,996
May:	Month	19,044,444	20,587,503	26,219,488	3,978,385	1,659,895	1,907,842	2,565,219	4,414,000	80,376,776
	Daily average	614,337	664,113	845,786	128,335	53,545	61,543	82,749	142,387	2,592,799
June:	Month	18,030,795	19,754,700	25,643,705	3,745,060	1,704,060	1,925,621	2,519,190	4,288,000	77,621,131
	Daily average	600,693	658,496	854,790	125,502	56,802	64,187	83,973	142,933	2,587,371
July:	Month	18,803,024	18,022,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,240,811
	Daily average	606,517	581,694	857,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,162,034	25,069,598	3,491,530	1,700,102	2,151,120	3,192,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	102,011	110,226	2,417,909
September:	Month	17,984,306	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,327,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,571,913	1,636,552	2,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,232	3,459,330	1,557,870	2,136,948	2,957,100	3,223,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,067,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,662	3,923,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	126,548	2,202,645
	Total 12 months	228,099,899	216,114,591	292,392,102	42,122,347	20,114,782	22,851,270	32,944,879	46,978,000	901,748,870
	Daily average	624,931	592,095	801,074	115,406	55,109	62,425	90,260	128,241	2,470,546